AUGUST
1954

BUS TRANSPORTATION

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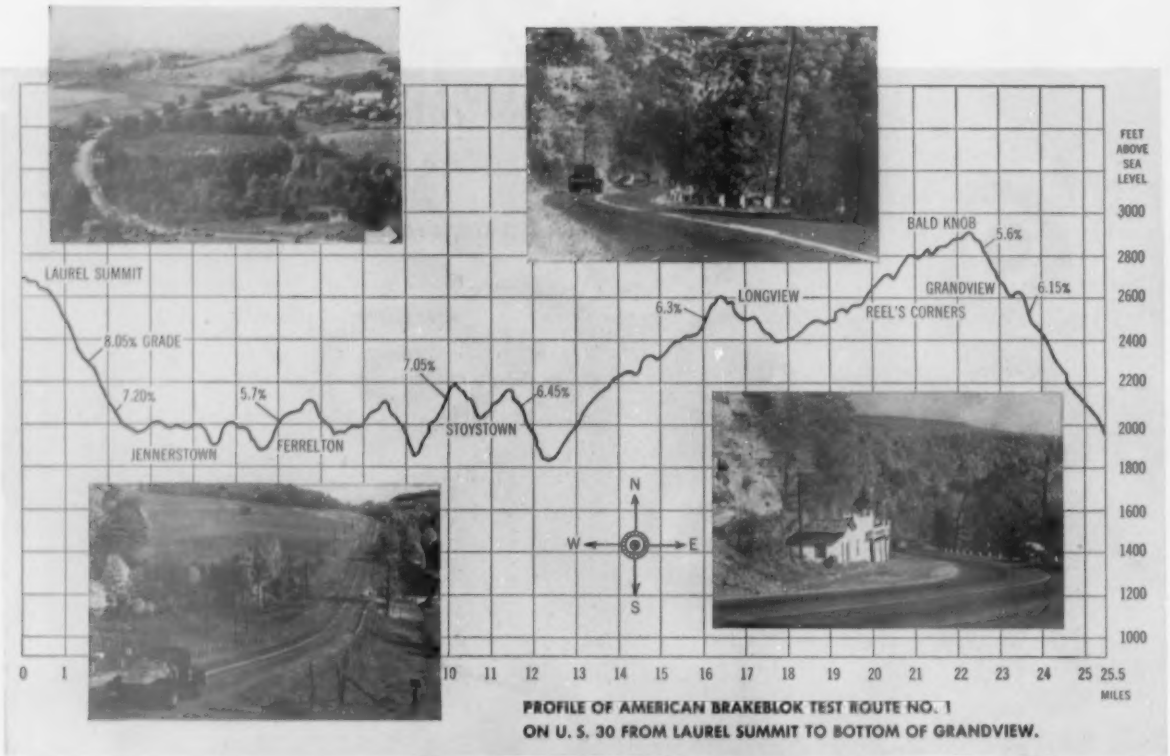

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Articles in Bus Transportation are listed in an index made available on request at the close of each year.

BUS TRANSPORTATION

AUGUST • 1954

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TRANSIT—A report on how good transit management can overcome many of the problems facing transit today. A report on the transit driver, what he is, what he thinks, why he is what he is, and a program to shape him into the kind of employee management wants him to be.

ANNUAL BUS SHOW—Picturing the latest vehicle models from the manufacturers, together with picture and text report on the latest accessories and supplies.

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WAGNER® BRAKE LINING

assures longer wear and quick, safe, smooth stops

Give your drivers the good brakes they deserve by relining with Wagner Brake Lining, and you'll be miles and money ahead in the long run.

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For better service at the "see" level

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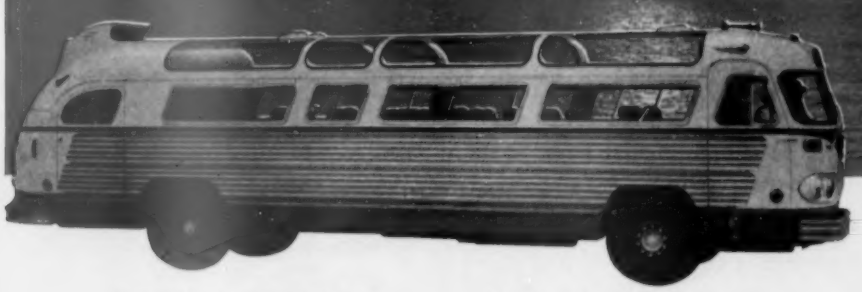

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Cross town . . . or cross country — whatever the type of bus or service — there's an Edwards Sash that meets exactly — and economically — every operating and service requirement. Write today for complete information.

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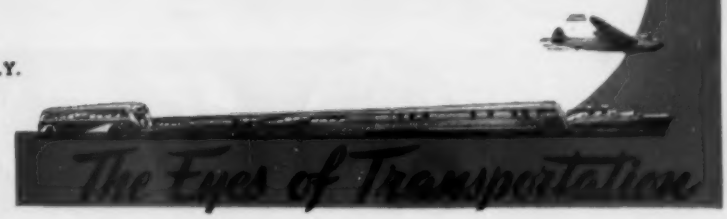

"14 YEARS OF OPERATING

TEXACO

TEXACO

LOW ENGINE COSTS"—

. . . says Keith K. Crocker, Safe Way Motor Coach Co., Manitowoc, Wisconsin

HERE'S HOW effective lubrication—*Texaco D-303 Motor Oil*—benefits Safe Way. Says Mr. Crocker:

> **"We've been using Texaco D-303 Motor Oil since 1940 and have profited by 14 years of low engine operating costs. Our maintenance records show we've been getting ring life up to 180,000 miles and bearing life about 4 sets per bus in 800,000 miles."**

Fleet operators everywhere get high engine efficiency and reduce maintenance costs by using *Texaco D-303 Motor Oil.*

Other Texaco lubricants, famous as cost-reducers from coast to coast, are:

Texaco Marfak—For long-lasting chassis bearing protection.

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Texaco Universal Gear Lubricant EP—for smoother running, longer lasting transmissions and differentials.

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Lubricants and Fuels
FOR THE BUS INDUSTRY

IN CHICAGO

The last 300 of 400 Propane buses ordered by the Chicago Transit Authority in 1953 are being equipped with Consolidated Door Operating Equipment.

IN CLEVELAND

The Cleveland Transit System is installing Consolidated Door Operating Equipment in their new Rapid Transit Cars.

ALSO CHICAGO

Chicago Transit Authority new Rapid Transit Cars are being equipped with Consolidated Electric Door Operating Equipment.

ALL-ELECTRIC PUSH DOOR

Consolidated push-door-control for exit doors offers you these field-tested design features:

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- **Low maintenance costs.**
- **Simple to install — new or existing buses can be equipped quickly, efficiently.**
- **Rugged in construction — built to last longer — a characteristic of Consolidated's complete line of door operating equipment.**

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Easy does it-
THE WEAVER WAY

Model WR-31
2500 lb. capacity

WEAVER WHEEL DOLLY

LIFTS, LOWERS, TRANSPORTS HEAVIEST WHEELS

Saves time, manpower, personal injury

Don't bog down your mechanics with tiring, time-consuming wheel handling jobs. Let a Weaver Wheel Dolly eliminate the danger and drudgery. With it, one man can easily remove, lift, transport, or replace the largest single or dual wheels and tires . . . no helpers are needed.

A built-in hydraulic jack on the WR-31 powers all lifting and lowering of wheels. Strong chain hold wheels upright. Roller-type supporting arms permit rotation of wheel to line up bolts or keyways. Ball-bearing swivel casters permit easy movement of heaviest loads.

Plan now to install Weaver Wheel Dollies in your own shop to speed up all jobs requiring removal of wheels. Eliminate the production "slow-downs" that manual handling always involves.

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...handles toughest lifting jobs

This rugged, power-packed Weaver Hydraulic Jack No. WA-75 lifts loads up to 10 tons – swiftly and safely. Patented Quick-Lift Lever speeds travel of lifting arm to load . . . simplifies spotting. Detachable handle operates on any phase of stroke stays in vertical position when not in use. Ball-bearing wheels and ball race casters promote easy maneuverability. Safety features prevent accidental lowering, overloading, slipping, or tipping. Lifting range is 5⅞" to 24"

See your Weaver jobber or write for Wheel Dolly Bulletin BT-602 or Hydraulic Jack Bulletin BT-461.

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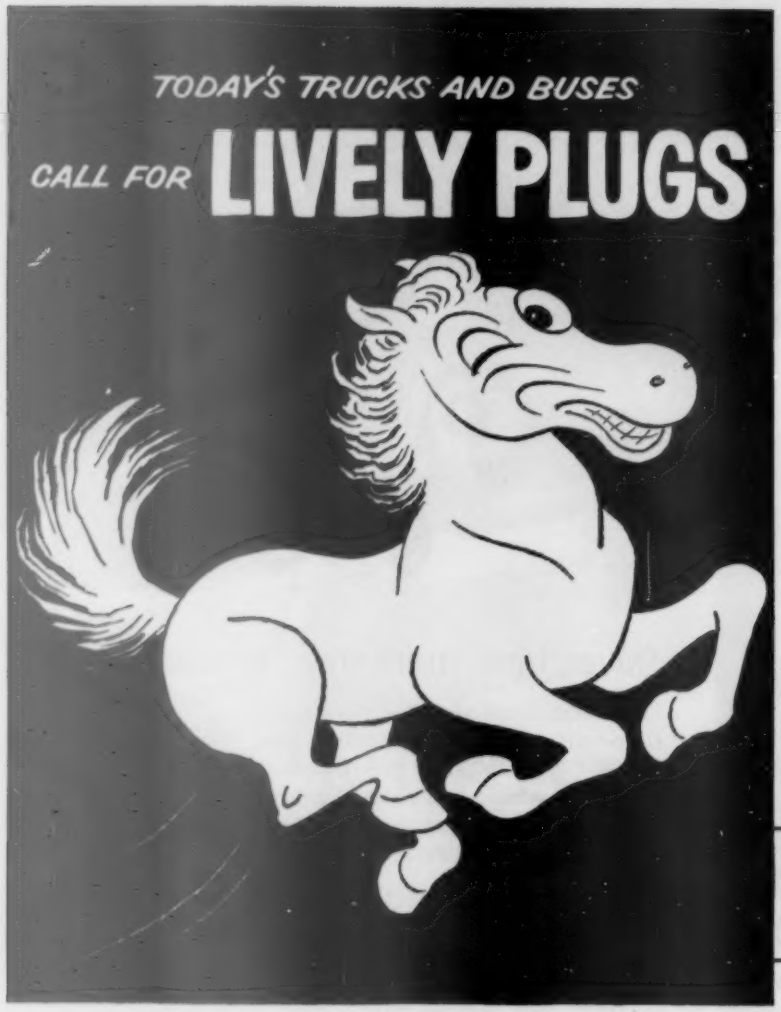
Complete Weaver line includes – Twin Post Lifts . . . Single Post Frame Type Lifts . . . Unit Lifts . . . Wheel Alignment Equipment, Headlight Testers . . . Brake Testers . . . Wheel Balancing Equipment . . . Jacks . . . Wheel Dollys . . . and Air Compressors.

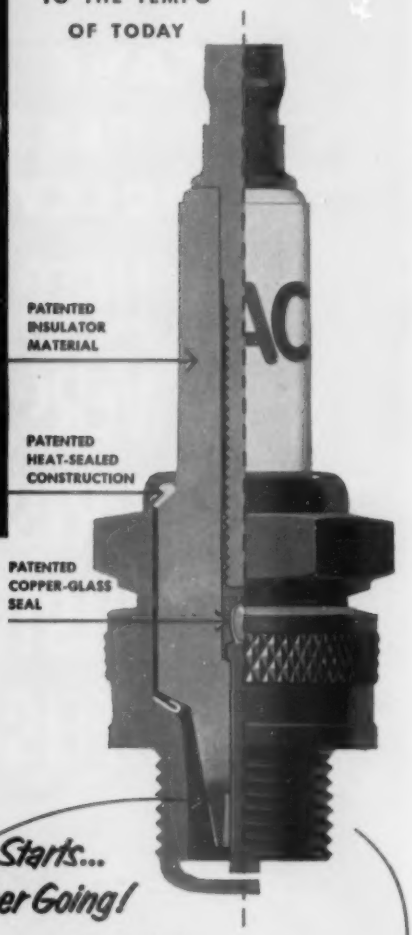
TODAY'S TRUCKS AND BUSES

CALL FOR **LIVELY PLUGS**



AC SPARK PLUGS

ENGINEERED TO THE TEMPO OF TODAY



We'll bet this is the first time you ever got a tip from a horse! But, it's a good one,'cause when it comes to spark plugs, our Sparky knows what he's talking about.

He'll tell you clean plugs save gas. He'll tell you, too, that AC's exclusive "hot-tip" feature means a remarkable saving in gasoline—because a hot insulator tip burns away carbon and oil deposits, prevents plugs from fouling. *Gas mileage goes up! Horsepower goes up! You get quicker, easier starting, better performance all the way!*

So, why not take this tip straight from the horse's mouth? Standardize on "hot-tip" AC Spark Plugs in your maintenance work!

Easier Starts... Smoother Going!

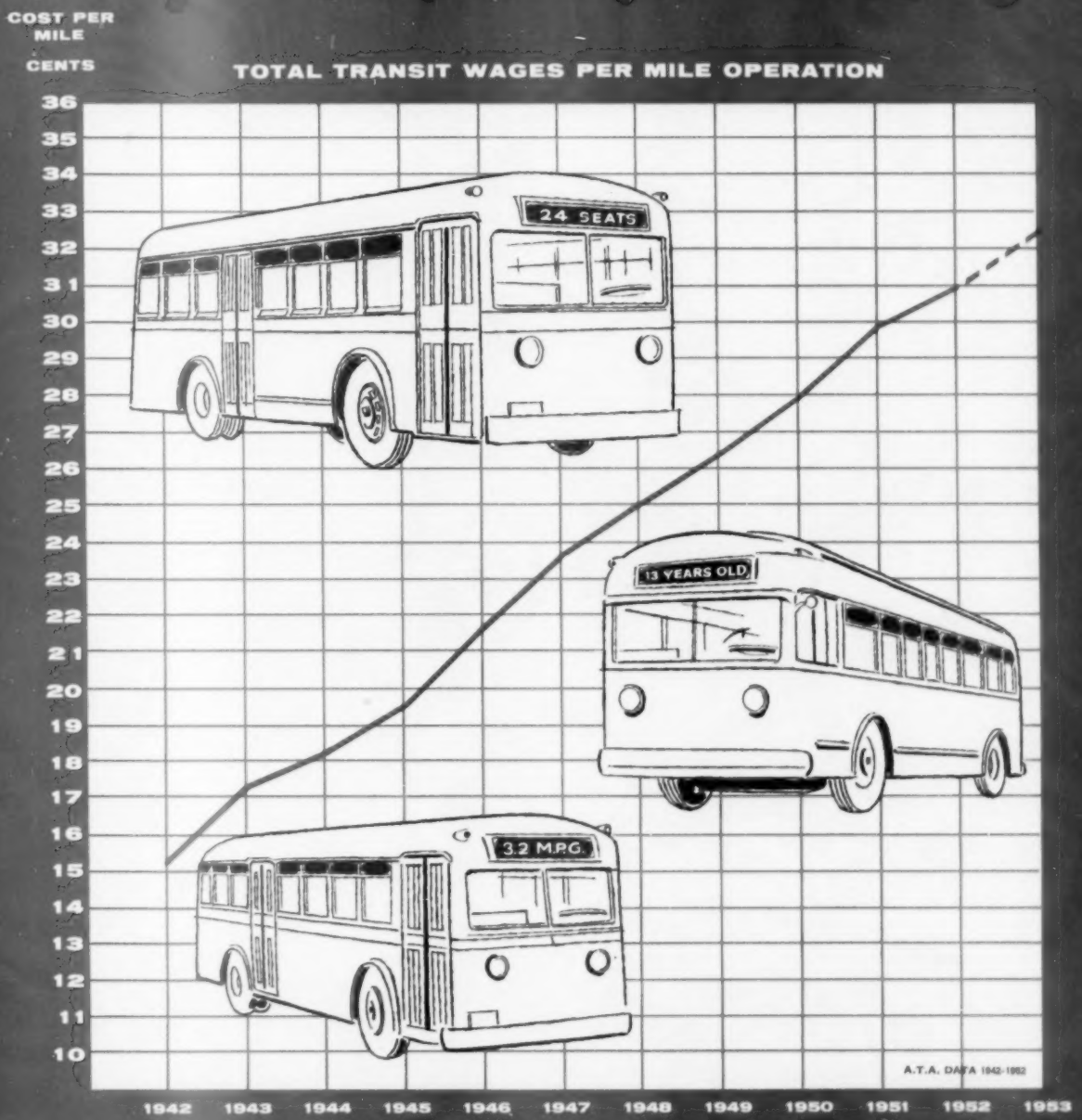
The Exclusive AC Petticoat Insulator Tip

This recessed thin tip skirts, but does not touch, the center wire. It heats up much more quickly, burns away oil and carbon deposits which are likely to foul ordinary plugs lacking this feature.

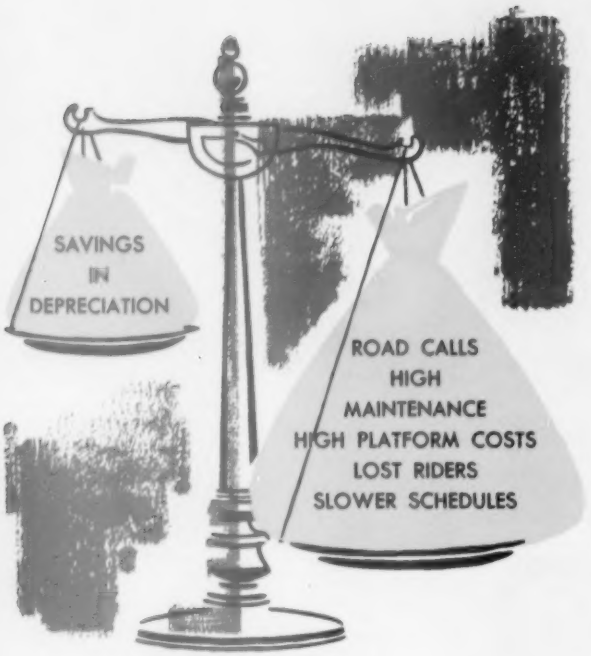
AC SPARK PLUG DIVISION GM GENERAL MOTORS CORPORATION

STANDARD FACTORY EQUIPMENT ON MORE NEW VEHICLES THAN ANY OTHER MAKE

How to cut the high cost of rush hour service



Changing Times Call for Another Look at the Cost of Trippers



Spiralling

costs have made over-age small-capacity equipment prohibitive to run

Because of the limited mileage operated by coaches in tripper service, many operators believe the use of fully depreciated equipment is the most economical.

But as platform and maintenance labor costs have claimed a bigger share of the expense dollar, savings in depreciation expense are often more than wiped out by the penalties of small-capacity equipment, and the high operating costs of old vehicles.

Total transit wages per mile of operation have more than doubled since 1942. Between 1946 and 1952 they increased 48.6% . . . and they are still going up.

There is only one way you can offset these higher costs today, and that is by investing in new, bigger, more modern coaches with a higher seat-mile output per man-hour . . .

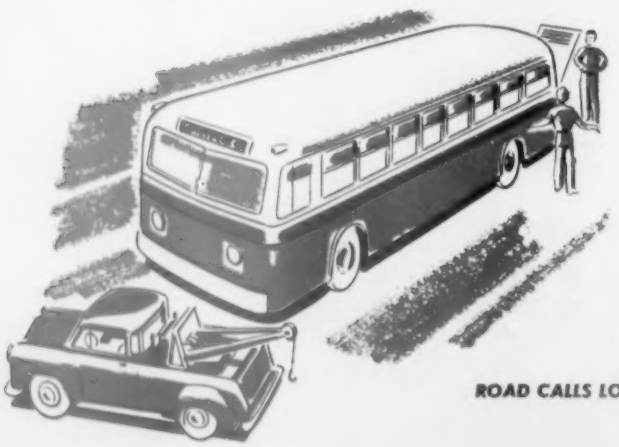
YOU *are actually paying for new equipment without getting it,*

AND HERE'S WHY...

SMALL CAPACITY COACHES . . .

raise your platform costs . . . especially during rush hour service . . . often require penalty time. To move a given number of people, they require more fuel and oil . . . more tires . . . more hostling . . . more parts and maintenance work, more record keeping . . .

NOT ENOUGH SEATS BEHIND THIS DRIVER TO MAKE A PROFIT



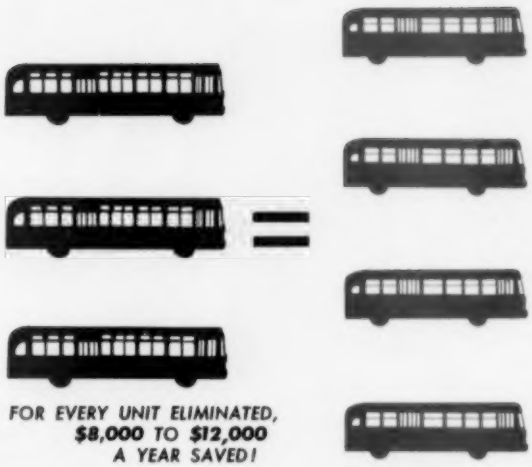
OVER-AGE COACHES . . .

cost more to maintain . . . require more road calls (aggravating passengers, losing riders) . . . repel marginal riders with other traveling alternatives . . . require more spares . . . create problems in securing parts . . . discourage maintenance crews . . . Older types of equipment cannot attain the schedule speeds of modern coaches – increasing your driver costs . . .

ROAD CALLS LOSE TIME AND MONEY—LOSE RIDERS TOO.

Fleet modernization with large capacity

GM *Diesels will give you all these advantages*

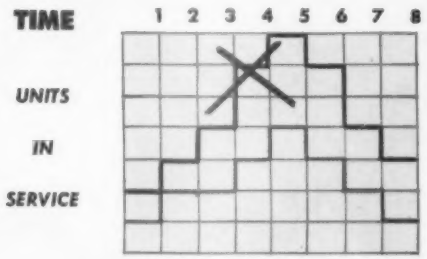


FOR EVERY UNIT ELIMINATED, ***$8,000 TO $12,000*** *A YEAR SAVED!*

DOLLAR SAVINGS THROUGH ADDITIONAL CAPACITY

Upgrading your fleet to large capacity models means a proportionate reduction in units.

Where 45-passenger coaches replace 36-passenger models on a seat-for-seat basis (or wide 51's replace 45's), yearly capacity savings approach $2,000 for each new vehicle added.



REDUCE THE PEAK TO BASE RATIO

DOLLAR SAVINGS THROUGH LOWER RUNNING COSTS

Where Diesels replace gas-powered equipment, savings in running cost often exceed $1,000 yearly (depending on mileage). Add this to $2,000 savings from increased capacity, and your new equipment will pay for itself in less than 7 years. An improvement in schedule speeds with GM Diesel-Hydraulic equipment means still more savings . . .

LESS INVESTMENT YET MORE REVENUE

GM Diesel dependability and performance means fewer schedule delays, high availability, a smaller spare requirement, and therefore less equipment to maintain, service, license, store and move about . . .

AIR SUSPENSION *AND OTHER NEW FEATURES WILL RAISE YOUR STANDARD OF SERVICE*

FAST, DEPENDABLE, "ON-TIME" SERVICE WILL IMPROVE YOUR COMPETITIVE POSITION

INCREASED RIDE APPEAL.

More attractive coaches due to recent refinements, and greater riding comfort (with Air Suspension) and faster, more reliable schedules will attract and hold riders . . .

Fleet Standardization on GM Diesels

will improve your earnings still further

TDH—5105
TDH—5106

TDH—4512

TDH—3714

TDM—4515

Many operators with mixed fleets are now accelerating their conversion to 100% GM Diesel operation.

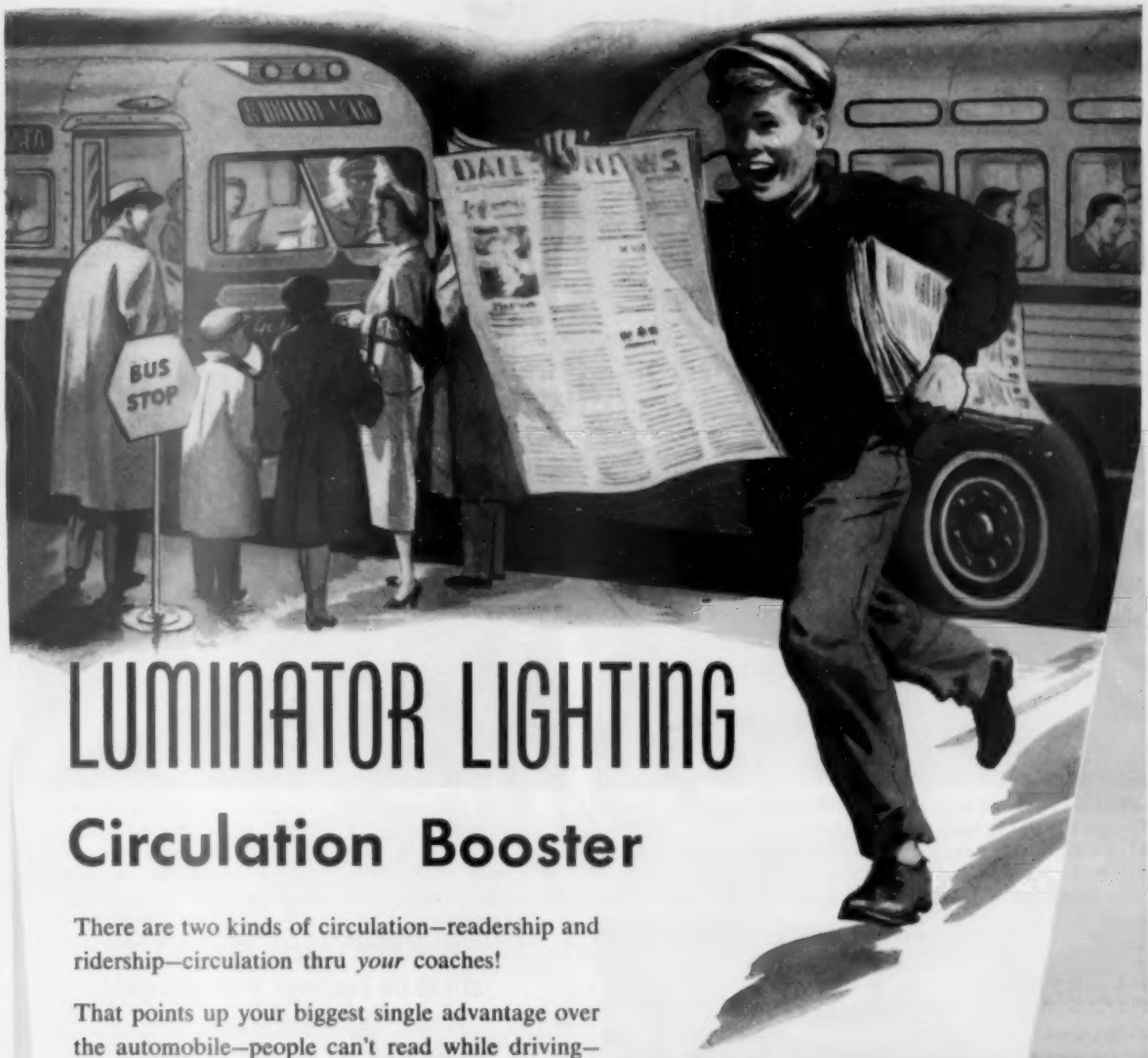
GM Fleet Standardization brings

1. An immediate reduction in inventory and tools.
2. Greater manpower specialization.
3. Improved quality of maintenance.
4. More simplified scheduling.
5. Reduction in personnel training costs.

GM COACH

GMC TRUCK & COACH DIVISION
GENERAL MOTORS CORPORATION

PRINTED IN U. S. A.



LUMINATOR LIGHTING

Circulation Booster

There are two kinds of circulation—readership and ridership—circulation thru *your* coaches!

That points up your biggest single advantage over the automobile—people can't read while driving—but they *can* read in *comfort* on Luminator lighted vehicles.

Luminator Fluorescent Lighting highlights the interior of your buses. Makes them safer and more inviting—throws a welcome mat of light at every bus stop. Luminator-designed prisms and lenses reduce glare with increased foot candles—provide lighting that acts as a silent salesman saying, "come aboard and read and relax as you ride!"

LIGHTING ENGINEERS • DESIGNERS • MANUFACTURERS

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IN CANADA: RAILWAY AND POWER ENGINEERING CORP.

THE ENGINEER'S REPORT

DATA

LUBRICANT	RPM Chassis Grease T-B
UNITS	315 city buses
PARTS	Chassis bearings
CONDITIONS	Continual shock loading
FIRM	San Diego Transit Lines, San Diego, Calif.

Buses average 137,333 miles on steering bushings!

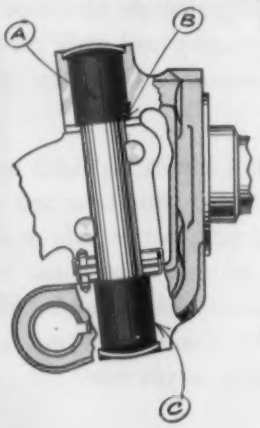
LUBRICATED WITH RPM CHASSIS GREASE T-B, San Diego Transit Lines' fleet of 315 buses traveled 1,100,000 miles a month during a 6-month period. Maintenance records show only 8 steering assembly re-bushing jobs per month. This is an average of 137,333 miles of tough stop-and-go driving for each re-bushing, even though buses run 3000 miles between greasings. The firm has used RPM Chassis Grease T-B for years, finds it holds maintenance costs lower than any other grease they've tried.

PROTECTIVE COLLAR OF GREASE, shown around tie rod end and base of king pin, helps seal grit and water from chassis bearings. According to Mr. Ray Anderson, Superintendent of Equipment, the firm particularly likes RPM Chassis Grease T-B because it reduces wear, sticks to bearings for extended periods in all kinds of weather.

REMARKS: San Diego Transit Lines buses operate only on short, stop-and-go city routes with continual braking and rush hour overloads. RPM Chassis Grease T-B stays in place, protects chassis bearings in spite of this tough service.

RPM

How RPM Chassis Grease T-B sticks on bearings, prevents wear



A. Contains metallic anti-wear agent and heavy oil stocks—increases film strength and resists wear.

B. Stringiness agent provides high adhesion and cohesion properties—will not squeeze out of bearings, helps seal out grit and water.

C. Has excellent pumpability in cold weather—assures constant lubrication.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

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THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

Full-Flow Spring

-another reason why

Sealed Power KromeX

Piston Ring Sets deliver the world's best

ALL-AROUND PERFORMANCE FOR THE MOST MILES!

28 MAJOR ENGINE BUILDERS use Sealed Power chrome top rings!

GET IT FROM YOUR JOBBER

Sealed Power's exclusive Full-Flow Spring, which is part of the MD-50 Steel Oil Ring in every KromeX Ring Set, is a prime factor in the immediate oil control for which these sets are famous. Twice as many slots, so no piston oil hole can be blocked, no ring slot can be blocked, and a full flow of oil is assured through ring, spring, and piston oil holes, back to crankcase. Even curves produce even distribution of pressure for longer wear and easier starting, even in badly tapered and out-of-round bores. No other piston ring set can match Sealed Power KromeX results!

SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW BUSES! BEST IN OLD BUSES!

Sealed Power Motor Parts—The Heart of the Engine · Rings, Pistons, Pins, Sleeves, Valves, Water Pumps

it's a PAY CHECK stepper-upper!

Snap-on*

MECHANICS STANDARD SERVICE SET

Every minute you lose hunting for the *right* tool . . . each time you're compelled to "make-do" with a misfit . . . whittles away at your earning power! Here's a set that backs up your own skill and know-how with the fastest, finest tools a man can own. The Standard Service Set was planned by Snap-on to help mechanics *make more money!* Every one of the 166 tools in the set is a basic in handling service operations most frequently met. The big, six-drawer chest keeps them *safe*, and right at your finger tips as needed. Check over the list—then check your own tool kit!

166 TOOLS IN BIG 6-DRAWER CHEST

Plastic Tip Hammer
Feeler Gauge
Spark Plug Gauge
Hack Saw Frame
Carbon Scraper
Wire Brush
Valve Lifter
Valve Key Replacer
Valve Spring Compressor
Ignition Pliers
Gripping Pliers
Needle Nose Pliers
Diagonal Cutter
Battery Pliers
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Passengers and employees will appreciate Solex in your terminals and offices—for waiting and working comfort. Green-tinted Solex is available in Plate Glass for single glazing as well as in Twindow—the window with built-in insulation. See your Pittsburgh Plate Glass Company dealer.

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PUROLATOR PRODUCTS, INC., Rahway, New Jersey and Toronto, Ontario, Canada
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Here's what experts say about

CONNECTICUT RAILWAY & LIGHTING CO., BRIDGEPORT, CHESTER L. MENNE, GENL. SUPT. "We have been using Rub-Bub Heavy-Duty Safety Step Plates on [illegible] and have found them to be excellent for long wear and the safety of our passengers."

DALLAS RAILWAY & TERMINAL COMPANY, J. T. HURRY, SUPT. OF BUS EQUIPMENT. "We always specify Rub-Bub Heavy-Duty Safety Step Plates on new equipment purchases so that we may be assured of receiving maximum wear life as well as getting the utmost in passenger safety."

Choice of flooring—either for original equipment or for maintenance—is no trivial decision. There's more to it than price alone. There's the safety of your passengers, wear life of the flooring itself and ease of installation. Flimsy floor covering soon wears thin, becomes spotty and unsightly.

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So follow the lead of the leaders. Specify Rub-Bub Flooring for new and reconditioned vehicles. You'll get longer flooring life, greater passenger safety. That's why—for the last 6 years—*over 70% of all urban transit vehicles made have been equipped with Rub-Bub Flooring.* AA-29

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BUS TRANSPORTATION

TOP TOPICS

HIGHLIGHTS OF LAST MINUTE DEVELOPMENTS IN THE BUS INDUSTRY AS WE GO TO PRESS

August, 1954

THINGS ARE LOOKING UP IN PHILADELPHIA, where PTC reported a net income of $948,708 for the first six months of 1954. Same period last year was $117,185. Operating revenues were $37,155,471 -- an increase of $258,659 over the same period last year.

Expenses went down to $33,245,407, excluding income taxes, for a drop of $483,800.

Said PTC President Charles Ebert: "Earnings were secured in the face of adverse factors that are depressing our riding volume by as much as 10 per cent." He attributed the better picture to cost-reduction measures and new fares.

THE FIGHT ON EXCISE TAXES IS STILL GOING ON in the transportation industry, in spite of the recent reduction from 15 to 10 per cent.

NAMBO is an active member of a national conference working for repeal of the entire tax...is anxious that its members help distribute a leaflet showing the unfairness of the wartime excise on transportation.

The leaflet does a good job...points out to the public that the tax is hitting them right in the pocketbook.

MEANWHILE, ANOTHER COMMITTEE IS STARTING IN on the job of running transportation and communication facilities with a minimum of interference from government.

The newly-formed committee has a big name: "Transportation and Communication Committee of the Chamber of Commerce of the United States. But then, its job is big, too.

Among its 43 members are Robert Driscoll, VP and general counsel of the Greyhound Corporation, and former ATA head Harry W. Arnold, president of Ohio Rapid Transit.

EMPLOYES ARE BIDDING TO BECOME OWNERS of Tacoma Transit Co. In fact, all 143 employes voted unanimously to submit an offer to buy the privately-owned system for an undisclosed amount.

Stock is currently held by 512 persons...and the employes' offer will be submitted to them by the directors.

AS IF THERE WEREN'T ENOUGH AUTOS GLUTTING THE STREETS, a survey just published by "Business Week" reveals that consumers are in a mood to

step up their buying of automobiles and other durable goods.

The study was made by the Survey Research Center of the University of Michigan. It found that consumers' optimism, while not as high as in late 1952, has leveled off after its downward plunge of six and nine months ago.

If there's any silver lining for the bus business in this cloud of consumer optimism it might be that at least people will be doing more shopping. The problem: to get them to go by bus.

TRANSIT CREDIT SLIPS HAVE DIED A QUIET DEATH IN BALTIMORE, after a trial that lasted several months.

It was a good attempt to induce shoppers to go by transit... if they did, they could get discounts up to 10 per cent, good for as much as $10, at participating stores.

But BTC and the originator of the credit slip idea couldn't get to first base because of the seemingly complete apathy of the public towards the idea.

THE FIVE-WEEK STRIKE IN PITTSBURGH COST PLENTY...and nobody won. In the first six months of this year Pittsburgh Street Railways Co. reported a deficit of $341,813, as against an income of $119,500 for the same period last year.

As for the employes, who settled without any appreciable gains after demanding enough to cost the company 5 million a year -- they didn't gain, either.

Besides the loss of five weeks pay, their action could well cause curtailment of service because of lost riders, with a consequent loss of jobs for the employes themselves.

"BE POLITE...OR WALK!" Municipal bus lines chiefs at Phoenix, Ariz., issued that ultimatum to high school students who have run up an impressive vandalism record...including punching holes in roofs and seats and setting bonfires in the aisles of buses.

Carl Rawlings, general manager of the city-owned system, has City Council permission to abolish special school service unless the vandalism stops.

TRANSIT OFFICIALS WANT RELIEF FROM PAYING STATE FUEL TAXES in Washington, where the state's Local Transit Association presented the request to a committee of the Legislature.

The argument is that local transit operations, running

entirely within city limits, get little or no benefit from state highway funds.

As an example of what the tax does to transit operations, the Association points to the only publicly-owned system among its members -- Seattle Transit. STS last year paid a total of $150,000 in state gasoline taxes and $17,000 in diesel oil taxes.

THE PARKING BAN WON'T DIE IN PHILADELPHIA. For a while, enforcement of the city's famed no-parking edict showed signs of fading away...but Police Commissioner Thomas J. Gibbons changed that situation fast.

He ordered a special force of 22 motorcycle cops into the center of the city. Their job: nab the parkers.

Besides that, the city is out to show it really means business...will expand the parking ban to 18 streets that funnel traffic into the shopping area.

A REDUCTION IN THE LICENSE FEE NOW PAID THE CITY has been requested by Syracuse Transit Corp. It pays $300 per bus...wants to reduce the fee to $100.

It would mean a saving of $16,500 a year to the company, which now is working on a close margin, but still is faced with the problem of replacing its pre-war equipment.

A TRUCE HAS BEEN CALLED IN SPOKANE, WASH., where the city and Spokane City Lines, a National City Lines subsidiary, have called a halt to their court battles.

An order temporarily restraining the company from changing bus schedules has been dissolved, and the bus firm has withdrawn its application for a review of the case by the State Supreme Court.

Meanwhile, the city has agreed to pay for a complete survey of the city's transit problems...said survey to be conducted by a "neutral survey firm."

ICC HAS OK'D THE NEW YORK STATE THRUWAY between Rochester and Utica as an alternate route for all motor carriers now authorized to operate in or through New York over U.S. Highway 20 or state highways 5, 31, 49, 96, 173, 250, 332 and 365.

All that's required is notice to the Commission, containing a statement of authorized routes, highway numbers of proposed deviation routes, including the part of the Thruway to be used, and a list of all known competitors.

Are New Concepts Needed?

TIMES ARE CHANGING . . . and people's habits are changing with them.

As the economy makes it possible for more people to own and drive their own automobiles, will they have less need for the service offered by transit and intercity bus carriers?

The answer is obvious, unless . . .

Transit and intercity carriers develop new concepts of service designed to meet the changing transportation needs of the riding public.

In the transit field there is at least one outstanding instance where management has "taken the bull by the horns."

United Transit, with its "Courtesy Station" free parking plan in the Greater Providence area (see p. 28), appears to have scored a nationwide first with a bright new idea. If it works out, shoppers will have easier access to the shopping district, downtown traffic congestion will be lessened considerably, bus riding will increase, and a large segment of the business community will benefit immeasurably.

In the intercity field a "bright new opportunity" lies in the new throughways and turnpikes which are being laid down all over the country. Some progressive long haul carriers are already using these modern facilities.

In a challenging article on page 25, Col. Sidney H. Bingham, noted transportation expert, discusses the use of these new highways in the light of competition from railroads and airlines, as well as the private automobile.

Many bus traffic executives are already becoming aware that, in taking full advantage of these new throughways, intercity bus carriers can develop a competitive travel package featuring speed, comfort and low cost which need take second place to no other form of transportation.

An old axiom, "cutting the pattern to fit the cloth," applies more and more to the problem of retaining present levels of bus riding and recapturing some of the riders who have strayed from the fold.

It can be done. A few progressive carriers are proving it every day. It requires only vision . . . an alert management . . . an awareness that the changing times require new concepts of service to fit the times.

THE EDITORS

Col. Sidney H. Bingham looks ahead to . . .

New Throughway Bus Travel of Tomorrow

Intercity bus carriers have a "bright new opportunity" for the future, says the author of this provocative article. In outlining these opportunities, he voices a challenge which cannot be put aside.

INTERCITY BUS LINES are on the threshold of a bright new opportunity to cash in on the new throughways which are unfolding before them.

Special vehicles built to utilize throughway possibilities can beat railroads on time and airlines on price, and offer comfort, convenience and dependability which complete the competitive travel package.

Take New York to Cleveland as a comparison:

By railroad, it is approximately a twelve-hour trip and a coach ticket costs $19.33.

By air, it is approximately a two-hour trip and the coach fare is $20.00.

By bus, it is a 14-hour trip and the fare is $11.95.

Neither competitive service can touch the bus on price, of course.

Neither competitive service can meet the time of the airlines but their time advantage is mitigated by the limit on available air coach space and by the vagaries of weather.

Taking only New York to Boston, New York to Chicago, New York to Cleveland, New York to Washington, New York to Pittsburgh and New York to Buffalo, there are at least half a million passengers now using scheduled and non-scheduled air coach services, for whose travel, bus lines could bid—if they had the equipment to attract them. If buses were to compete with railroads in time and comfort, the potential is almost doubled.

What have the competitors of intercity motor carriers been doing? Plenty! Airlines have been popularizing coach travel, scaling down prices, and nibbling into bus traffic as well as rails and even private cars. The railroads have improved the comfort of their coaches, provided price inducements, created new steward services. The New York, New Haven and Hartford is creating tremendous interest with its exhibit of the Talgo train which, in service in Spain, has cut the Madrid-Pyrenees running time from twelve to eight hours and has proven an economical train to operate.

In the past month, six railroad presidents have told me they are looking into the possibilities of Talgo-type train because they think it will win back lost passenger traffic and give them a cheaper dollars-per-mile operation. Far advanced in plans to recapture and create rail coach travel is the "Siesta Coach" which is designed to sit or sleep 40 passengers in private compartments.

The Rock Island just has ordered four Talgo units whose low centers of gravity let them slice hours off normal runs merely by their ability to maintain speed on curves. The New York, New Haven and Hartford expects delivery this summer of nine Rail-Bus cars which will put another dent in highway carriers' traffic.

What can bus operators do to win and hold their share of the millions of passengers who don't, but might, use buses in the areas already served by super roads?

They cannot wait for the development of 450-horsepower gas turbine engines. Such engines are on the way —one already is in experimental operation—but the bus lines might not survive the competition until that engine is commercially feasible.

They need not wait, however. They

COL. SIDNEY BINGHAM is executive director and general manager of New York City's Transit Authority, but his interests cover all phases of transportation. Experts from all over the world seek his opinions on transportation problems. His views in this article are, we believe, sound and worthy of consideration. — The Editors

can obtain more than adequate power, smoothness and flexibility from the newer-type diesel engines. Besides power and fuel economy, these engines offer self-deceleration and driving characteristics comparable to automobile powerplants. What thousands of them are doing in day-in and day-out dependable service in high speed heavy freight hauling they can easily duplicate in passenger service.

Present buses on the new throughways and turnpikes soon will be as out-of-date as the "Spirit of St. Louis" would be for today's trans-Atlantic air passenger service. Buses operating over these roads still are designed and built to meet length and width limitations prescribed for conventional highways. But these limitations do not apply to the new super roads.

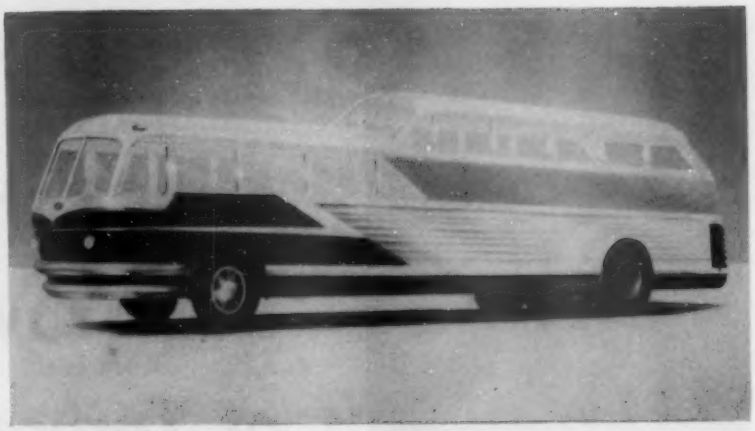
Why work under this unnecessary restriction? A 40-passenger bus, 44 feet 8 inches long, and possibly 104 inches wide could be designed especially for throughway operation. It could take several notches out of present schedules and provide comforts undreamed of in buses. And it could make profits to match.

In the throughways, bus lines now have the most superb right of way in the country and to use it advantageously they must create a new ride for America on Wheels—luxurious as an airplane, fast as a train, cheap as a bus. It can be done.

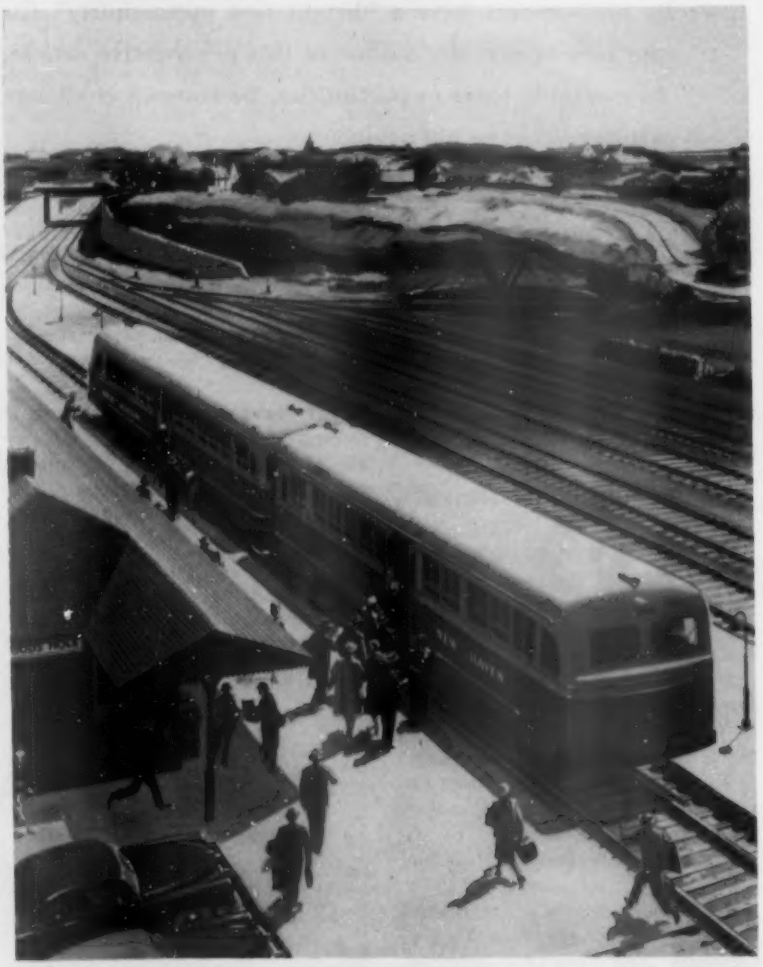
In the width and length possible on the throughways, spacious contour seats and new suspension can make bus travel as smooth and vibrationless as on the best railroad car. Adjustable three ways, these seats can be used in upright or semi-reclining positions for daytime travel. In full reclining position at night, they would create a berth more comfortable and sleep-producing than the conventional, extra-price, railroad berth.

It would be simple, and inexpensive, to install an electric hot plate in such buses, similar to the galley on airlines. With a little effort and planning, hot food could be served on de luxe bus runs. Stewardesses could be taken aboard with prepared food at one mealtime stop and dropped after the meal to make the return run in a bus in the opposite direction with food picked up at that stop.

Continued on page 102



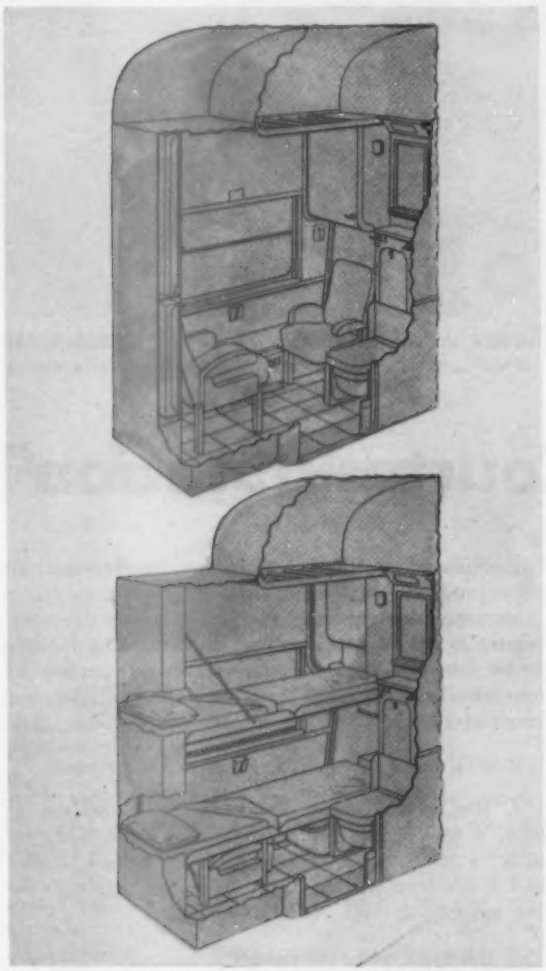
DECK-AND-A-HALF COACHES of the type shown in this artist's rendition would be of 40 passenger capacity, 44 feet 8 inches long, and up to 104 inches wide, designed especially for high speed operation over modern throughways.



COMPETING FORMS OF FAST TRAVEL, against which buses must contend, include Rail-Bus cars. These cars are now being considered by several railroads. Nine of them, produced by Mack, are being delivered to the New Haven Railroad next month.

SPACIOUS CONTOUR SEATS could be designed for these buses to adjust three ways: upright and semi-reclining for day travel, and full reclining for nighttime, with retractible foot-leg rests.

MODERN THROUGHWAYS of the type now being constructed across New York State provide the means for the fast, comfortable, intercity service envisioned by the author of this article.



THE SIESTA COACH, another new rail vehicle, is designed to sit or sleep 40 passengers in private compartments. Above drawings show a compartment made up for either daytime or nighttime

AIR COACH TRAVEL is another serious competitor to long haul bus carriers. With throughway service, in fast comfortable buses, intercity carriers could attract large numbers of air travelers.

TALGO TRAINS are the latest vehicles the rails are using to attract coach passengers. Extremely fast, with standard coach fares they represent the greatest competitive threat to bus travel.

100 SERVICE STATIONS will participate in UTC's free parking plan in the Greater Providence area. The map shows most of this area, with the service stations, represented by black dots, spread out and surrounding the downtown Providence shopping district.

UTC Sets Up "Courtesy Station"

SCORING A NATION-WIDE "first" with a bright new idea, United Transit Company is establishing about 100 "Courtesy Station" park and ride lots in the Greater Providence area, with the cooperation of enterprising service station operators and the major oil companies.

The UTC ring of Courtesy Stations will be established in and around Providence, nearby Pawtucket and Woonsocket. These stations, plainly marked with large, attractive signs in the company's yellow green and orange colors, will be located on the properties of the service stations dotting the area. All of them are located in the perimeter area on bus routes to the congested downtown shopping area.

The parking lot idea is a simple one. A patron—and let's assume the patron is a housewife heading downtown for some shopping—drives in from her suburban home to the outskirts of the city.

She spots a UTC Courtesy Station, parks her car—free of charge—and hops aboard the next inbound bus, paying only the regular bus fare.

Her errands completed, she boards a bus dowtown, returns to the lot, picks up her car. Depending entirely on the business acumen of the station operator, the car may have been washed or serviced at standard rates. Net result of all this:

1. UTC has a new patron, on an existing route.

2. The service station operator has, potentially at least, a new patron for gas, oil, washing and service work; a patron he would have had little chance to meet had it not been for the Courtesy Station sign and the free advertising done for him by UTC.

3. Dowtown traffic congestion is lessened.

4. Public service has been rendered painlessly and, it is hoped, profitably to all concerned.

PARK 'N RIDE SIGNS will be erected at each of the service stations participating in UTC's free perimeter parking program.

Parking Plan

The business that service station operators develop from this arrangement is strictly up to them. There is no obligation on the part of the shopping-bound motorist to have his or her car gassed or serviced.

The station operator reserves the right to turn away parkers if his lot is filled. In this connection, however, several indicated that they would be delighted to go out of their way to accommodate a motorist.

The problem of all-day parkers, such as downtown office workers, was the first question that the oil companies and service station operators wanted an answer to.

UTC had it as the result of recent traffic studies. They pointed out that, statistically, the typical park and ride patron is a women (1.3 women to be precise), that she uses a parking lot 1.2 times per week and leaves her car there three hours and 20 minutes.

Reluctant station operators found these figures persuasive. Having these figures at their finger tips is just one indication of the alert way in which UTC went about the task of establishing this new venture.

It is one thing to come up with a bright, new idea. It is something else again—and four to five months of planning and selling—to bring it off successfully.

Before the transit company approached a single oil company or service station operator, they surveyed every station on all existing bus routes in the Greater Providence, Pawtucket and Woonsocket areas.

The location of every station was noted, the oil company supplying it, the operator's name, and an estimate of the number of automobiles each of the lots might accommodate.

A total of 172 service stations in the area were listed as prospects.

UTC President Arthur Lewis made the initial calls on the oil companies (a dozen in all). The oil companies which have agreed to participate in the program are Atlantic, Texaco, Sunoco, Socony-Vacuum, Shell, Gulf and Cities Service.

Four companies turned down the invitation to take part in the venture, asking "Can we come in later if the idea works out?" UTC said they certainly could.

As each oil company gave the green light to the idea, UTC, sometimes with the oil company representative along, sometimes on their own, made the first direct contact with the individual service station operators.

In selling the service station operators, UTC was also checking to see if they met the requirements of a Courtesy Station. These requirements included: clean, well kept rest rooms, reasonably well kept premises, adequate service facilities, courteous personnel.

From the original list of 172 prospective stations, about 100 have agreed to participate in the venture. Parking capacity at the stations varies from four to five cars on up to 15 to 20.

With service stations lined up, the next problem the transit company faced was the matter of signs, where they could be placed and what type would be permitted by the individual communities. Some communities required stationary signs, so many feet from the curb, not overhanging a sidewalk. Others permitted swinging signs.

UTC drew up plans for two different types of sign, one stationary and one swinging. Not including costs of installation, each swinging sign cost $19, and each stationary sign, including the pole, cost $21. UTC made the signs themselves. The actual sign areas are steel and measure 36 by 38 inches.

It remains to be seen how the new venture works out. UTC has spared no effort in trying to get it started and will spare none in promoting it.

It marks, in one sense, a bold yet relatively inexpensive extension of service . . . at a time when the public is demanding it. If it works out it should certainly relieve traffic congestion downtown and night, for this reason and others, be used as model for other transit companies in other cities.

SWAN R. SUNDSTROM, President

J. L. SHEPPARD, Executive VP

R. B. PHILLIPS, Comptroller

Greyhound Starts Reorganization With Merger of Penn and Central

PLANS OF THE GREYHOUND CORPORATION for merging or consolidating a number of its wholly-owned operating and subsidiary companies are now moving out of the formative stage into the accomplishment stage.

The schedule called for the first concrete move to be made about August 1, when the accounting departments of Central Greyhound Lines and Pennsylvania Greyhound Lines were to be consolidated. R. B. Phillips, vice-president and comptroller of the latter company, was slated to head the combined accounting departments.

That move marks the start of bringing these two, the major Greyhound operations in the northeast section of the country, under one management. The task of merging the purchasing, traffic, personnel, maintenance and safety departments of the two will follow rapidly.

Meanwhile, in the southern part of the country, work goes on apace in consolidating three other Greyhound Corporation companies.

There it will result in Southeastern Greyhound, Teche Greyhound and Dixie Greyhound coming under one management, to be headed in all probability by H. Vance Greenslit, now president of the Teche operations.

The acquisition of the half interest owned by the Pennsylvania Railroad in Penn Greyhound Lines a few months ago made possible the present move by Greyhound Corp. in consolidating part of Central with Penn Greyhound.

A portion of Central may be merged with Great Lakes Greyhound, giving that operating company Central's Chicago-St. Louis operations.

No one in a supervisory capacity is being lost to the Greyhound family. Inevitably, changes in both location and position are bound to occur when two companies, both completely integrated, are consolidated.

Swan R. Sundstrom, president of Pennsylvania Greyhound Lines for the past 22 years, will head the new company, probably to be named Eastern Greyhound or Northeast Greyhound Lines.

Executive vice-president will be J. L. Sheppard, who has headed Central Greyhound Lines as president. As such, he will be responsible for the functioning of all departments except the accounting department, and will report to Sundstrom.

Bert Neilson, treasurer of Central Greyhound, is being upped to the offices of the Greyhound Corp. in Chicago. Neil Webb, manager of maintenance at Central Greyhound, accepted a transfer to Omaha, Neb., where he will assume practically the same duties for Overland Greyhound Lines.

George Brannan, public relations man for Penn Greyhound, returns to New York as general passenger agent; Roy Alexander, Penn's safety director, assumes the same duties for the combined companies.

P. C. Hanson, Central's purchasing agent, heads purchasing for the new company, with Edward Nichols and Thomas Hodgkiss, in charge of labor relations and personnel, respectively, at Central, continuing in those posts for the combined companies.

J. E. Donahue, vice-president of traffic and sales for Pennsylvania Greyhound, remains in that capacity for the new company as does A. E. Fullerton, who has been in charge of operations for Penn, and James Malley, in charge of maintenance. Frank Ernst, manager of claims for Penn Greyhound, will head the same department for the combined company.

Economy and increased efficiency are obviously the reasons for the combines, especially in view of the sag in volume of business being experienced by most Greyhound operating companies, and by practically every other intercity bus company as well.

The estimated savings accruing to Greyhound by eliminating the accounting work in ticket sorting, crediting, charging, etc., which has been necessary between these two big operating companies, is expected to total well over 20 per cent when the two departments are combined into one.

Even greater savings can be enjoyed in a number of lesser departments. For instance, one purchasing agent, with the possible addition of another clerk, will function for the combined company.

Substantial savings are anticipated in both maintenance and rolling equipment with one garage now serving at a terminal point (New York) where in the past two have been maintained, and with a single fleet of buses for the combined companies instead of each operating its own.

While as much as a year may be necessary for the complete digestion of Central Greyhound, Pennsylvania Greyhound, and later Blue Ridge Lines, the corporation won't have the ideal setup in the northeast section until Central Greyhound Lines of New York, Inc. and New England Greyhound Lines, Inc. can be fitted into the company that will emerge from combining Penn and Central.

Both are subsidiary companies of the Corporation and are 100 per cent owned, but there are special problems involved in merging their operations—problems that will necessitate extra-curricular doing even after a way is found. In fact, some of the pieces may be left unfitted into the pattern by the time those who are now guiding the fitting are enjoying their pensioned retirement—more or less compulsory in Greyhound at age 65.

The Corporation is well along in acquiring the 33.7 per cent stock interest of Southern Pacific Railway in Pacific Greyhound Lines, and moves have been made towards buying up the small amount of outstanding stock which still remains in the hands of individual investors.

Once it has acquired Pacific Greyhound Lines, the Corporation can then move toward a combine that would logically divide wholly-owned Overland Greyhound between Pacific and Southwestern Greyhound, of which it now owns all voting stock. Thus one more operating company would be eliminated.

That would leave three other important Greyhound companies—Atlantic, Northland and Richmond—with minority stock interests. About 20 per cent of Atlantic Greyhound is owned by the public.

Atlantic Greyhound, in turn, owns the 50 per cent interest in Capital Greyhound Lines not now owned by the Greyhound Corporation.

The Great Northern Railroad owns more than 40 per cent of the outstanding stock of Northland Greyhound.

The real stumbling block, however, is the 49 per cent of Richmond Greyhound Lines which is owned by the R. F. & P. Railroad. In this instance, all sorts of political ramifications must be faced.

While the combining of companies is expected to reflect favorably in the Corporation's earning statement, Greyhound's new bus, the Scenicruiser, formally unveiled by General Motors on July 14, is also expected to give a helping hand.

Their first operations will be from pool service and over express routes between major points, but none have been ordered for delivery to either Northland or Pacific Greyhound Lines.

Arriving almost simultaneously with the new buses is A. N. "Red" Brion, as a Greyhound Corp. vice-president in charge of sales.

Brought to the position from that as president of Northland Greyhound, Brion had previously made his mark as a sales executive when he served as manager of the Capital Greyhound Terminal in New York, and later as general traffic manager of Central Greyhound.

Brion comes to his new position at a time when Greyhound is in reality breaking its service into two classes —express and local. This is especially true of those Greyhound lines that have toll turnpike facilities available to them.

Greyhound has maintained a so-called express service on practically all of its routes for years. But the express schedules, intended primarily for the benefit of long distance passengers, have followed the same routes as local schedules, so there was no hesitation about filling a vacant seat with a local passenger.

But with the coming of toll turnpikes, Greyhound express schedules started taking on a new meaning. Now they operate as far as possible on the turnpikes. That in itself eliminates the local riders. It also means the sales department must come up with a pay load of passengers at the start of the schedule, or the chances are that the schedule will be a money-losing one.

What effect this will eventually have on the economic life of Greyhound Corporation cannot be determined, although it is obvious there is less need for comfort and lunch stops for the local passenger than for the long haul passenger.

The proof that turnpike express service has appeal to passengers, both in comfort and time savings, is furnished by long-distance passenger figures of the eastern operating companies providing such service.

While it's true that the volume has dropped this year, it has not sagged to the extent that local passenger business has fallen off. And this sag in volume of the long distance traveler can be traced, in large measure, to the decrease in military travel.

The drop in local passenger business can be attributed to the increasing number of private cars used for business and pleasure travel.

To compensate as much as possible for the latter loss, emphasis is being planned on the package express service available on Greyhound coaches, especially between local points.

As other agencies draw back from this type of business, Greyhound plans on stepping up sales efforts to take over and fill the gap.

Where Was Intercity Bus Born? Texas, Podner . . . It Says Here

By Leonard G. Simon

YOU WON'T FIND his name listed in any standard reference works on the history of the automobile or motor bus, but there is evidence to indicate that W. B. Chenoweth, who died penniless recently near Dallas, Texas, established the first intercity bus line in Texas and perhaps in the United States, and helped build one of the first six-cylinder engines in the world.

For several years the Chenoweth story has intrigued me, and I've done considerable work gathering the facts which would tend to support his claims to transportation fame.

LEONARD SIMON, general traffic manager of Continental Bus System, Dallas, spends a lot of his spare time digging into the early history of bus operations in Texas. Out of that hobby came the facts for this article. He started his transportation career in 1919 with a small railroad in Texas. From 1930 to 1936 he was traffic manager of Bowen Airlines. In 1938 he became traffic manager of Bowen Motor Coaches, and when Bowen evolved into the present day Continental Bus System, Len stayed right in the top traffic spot.

First of all, let me say I am a living witness of the crude stage coach he operated. As a boy I rode it many times, and I can point to others who at that time lived in and around Colorado City or Snyder or Big Spring, Texas, and who witnessed Chenoweth's bus and bus line operations between Colorado City and Snyder, and later between Big Spring and Lamesa, Texas.

Although Chenoweth thought he invented the first six-cylinder internal combustion engine in America, his was probably built a year after a practical six-cylinder engine was brought out by Charles and Frank Duryea, two of America's early automotive pioneers.

But there is evidence that Chenoweth's engine plans were on the drawing board prior to Duryea's. Chenoweth, apparently, never knew that the Duryea brothers were working on the same idea.

Chenoweth's main interest apparently was more directly centered on the establishment and operation of a transportation system, rather than in producing a six-cylinder engine to be used in an automobile.

He selected a 28 mile stretch between Colorado City and Snyder, Texas, as the route, and as far as I have been able to determine, that is where the first commercially designed intercity bus operated.

The first schedule was operated October 29, 1907. Chenoweth received the first auto license ever issued in Texas. It was No. 1, and the date of issue was July 12, 1907.

The first bus, called a stage coach in those days, was chain driven and had solid tires (see photo). I often rode that bus on the rear step when it chugged around the streets of Colorado City, my home town.

The motor-building bug hit Chenoweth while he was chief draftsman for the I. & G. G. Railroad, and living in Palestine, Texas.

Here is a copy of the letter dated October 14, 1899, which he sent to the National Engineering Laboratory in Philadelphia, Pa.

Dear Sirs:

I am enclosing blue print of a self-propelled vehicle driven with a gasoline engine in the drawing. Also the detail drawing of six-cylinder gasoline engine placed as shown on the general drawing. This vehicle is designed to make a speed of from 15 to 25 miles per hour on a public road and to be driven by a gasoline engine as shown on the drawing.

I enclose $5.00 not knowing your fee for such opinions. Would thank you for your opinion as to the practicability of such a vehicle.

Signed—W. B. Chenoweth

This letter engendered what could be considered a classic reply in the annals of "automotive experting." The reply was dated October 18, 1899. Here it is:

Dear Sir:

Replying to your letter of the 14th, beg to say you must have been kicked in the head by a mule when a small boy which left you laboring under the hallucination or delusion that ice could be frozen on a red hot stove by thinking of driving a self-propelled vehicle over a public road 25 miles per hour. In our opinion it's an idle dream of a feeble-minded person, especially so with a gasoline engine. Our opinions are only given on mechanical affairs of known factors. We do not act on theories of what might happen.

Yours truly,
National Engineering Laboratory

CHENOWETH'S BUS, shown here in old newspaper reproduction, had chain drive, solid tires, was first six-cylinder vehicle designed for intercity bus operation

This rebuff slowed Chenoweth, but did not stop him. He decided to find out if other manufacturers or inventors had made headway with an engine which might be adapted to his purposes.

He wrote to a number of engine manufacturing concerns, but had no success. Apparently none offered a six-cylinder engine, which Chenoweth believed was necessary to eliminate vibration and provide sufficient power for the bus he had in mind.

He then knew that, if he was to get the bus and engine he wanted, he'd have to spark the job himself.

But capital investment was the big problem. Chenoweth apparently was as short on money as he was long on imagination. But he finally found someone who had money and nerve enough to speculate, one W. A. Jones of Snyder, Texas. He also found a kindred soul in C. H. Miles of Clarksdale, Miss., who was both mechanic and inventor.

This combination was put together to form a small company with a capital investment of $3,500.

With cash in the till, Chenoweth started searching for a manufacturer who would build two 14-passenger buses equipped with six-cylinder engines. Chenoweth and Miles finally went to St. Louis and leased the Borbein Auto Company shops, which were then located on East 9th Street. The Western Motor Company of Logansport, Ind., agreed to build two six cylinder engines to Chenoweth's specifications at a cost of $735 each.

Work was begun on the bus frame and body and the first of two coaches, with virtually everything handmade, was completed in four or five months.

The first bus was given tests in St. Louis. After it passed satisfactorily, it was loaded on a flat car and shipped to Colorado City. Chenoweth accompanied the first bus while Miles stayed in St. Louis to see the second one finished.

When the bus appeared in Colorado City, citizens were confounded and freely predicted "the thing will blow itself up and kill half the people in town."

Preachers in their pulpits the following Sunday warned members of the congregations to keep a safe distance from the "dangerous vehicle" just brought into town. Of course, there was no such thing as a muffler for the exhaust pipe, and when the Chenoweth creation came down Main Street, chain drive and exhaust combined to create more noise than the community had ever heard.

The first intercity bus line operation was between Colorado City and Snyder. The maiden trip was on Monday, October 29, 1907. There was no clearly defined road, and what passed for one wandered in and out of pasture land and all over the landscape.

The first trip from Colorado City was relatively uneventful. When the bus reached Snyder about 9. p.m., everyone in town came down to the public square to see the strange contraption. It was the first self-propelled vehicle seen in that part of the country.

When it was time to start the return trip to Colorado City, no passengers came forward. Finally, with free passage offered, five intrepid passengers climbed aboard the vehicle. They bid all their friends and relatives farewell as though they never expected to see them again.

Business developed fairly well for the new enterprise. Then a group of citizens met at a school near Snyder and passed a resolution that Chenoweth's bus could no longer run through the community. They "invited" Chenoweth to take his contraption elsewhere. An "invitation" in those days was extended once; the second time it was likely to be anything but an invitation.

This treatment drove Chenoweth and his partners to Big Spring, 65 miles from Snyder. The second bus arrived in Big Spring, and the two vehicles began operating between Big Spring and Lamesa.

Horse-drawn stages made this 55-mile trip in 14 to 15 hours. The buses made the trip in eight to nine hours. This developed into a good thing, but it attracted formidable competition. A wealthy cattle king jumped into the business with four Model F 2-cylinder Buicks. This put the Chenoweth operation on the financial rocks again.

Back to Snyder went the bus promoters. This time the route was between Snyder and Roscoe, Texas, a distance of 40 miles. After four or five weeks, this route was doing fairly good business . . . so good in fact, that it, too, attracted competition. A hardware store owner bought two five-passenger, two-cylinder Reo touring cars and got into the act of hauling passengers. That did it. The bus promoters were out of the bus business once more.

Chenoweth and his two buses eventually landed in Fort Worth where the buses were converted to trucks and sold to a dairyman.

Thus endeth the saga of what was apparently the first commercial intercity bus in the United States, and the first attempt to operate a regularly scheduled intercity bus line.

IT'S BEEN PITS VS HOISTS FOR SEVERAL YEARS AT DETROIT STREET RAILWAYS. A NEW CHAMP IS CROWNED AS . . .

Hoists Win Over Pits at DSR

WHICH ARE BEST, HOISTS OR PITS, is a subject of perennial controversy.

Now, at least one operation, the Detroit Street Railways, has come out in favor of hoists. DSR installed nine hoists last January and from the results achieved since then considers them so much better than pits that they plan to install 18 more at another garage.

The new installation will incorporate 10-hose reels between every two hoists to dispense grease, oil, antifreeze, water and air. The present hoists do not have these reels.

Eight years experience with modified pits convinced management that a review of the situation was in order. Here are some of the reasons DSR management is sold on hoists:

Safety • Explosion and fire hazards are minimized.

Cleanliness • Less time needed to clean hoist area.

Lightness • Easier to supply adequate lighting.

Accessibility • Mechanics have more freedom of movement; buses need not be moved to remove bulky parts; finished jobs aren't locked between uncompleted ones which can't be moved.

Convenience • Height can be adjusted according to job or according to height of the employe.

Simplified Supervision • Foreman can tell status of job at a glance; reduced possibility of employe loafing.

Flexibility • Shop layout can be changed at small cost if hoists are moved; pits are virtually immovable.

Additionally, hoists are less costly • DSR's experience is that pits cost twice as much as hoists. This is because the city code requires adequate mechanical ventilation and explosion-proof lighting. Hoists make it easier to fulfill these requirements.

Many variations are offered in the types of hoists available. Each DSR hoist is individually engineered and how DSR solved its problem is offered only as a guide to show items to be considered.

DSR chose electric-hydraulic actuation instead of air-hydraulic because of easier maintenance. The initial cost was about $1,000 more than for the air-hydraulic system. Maintenance consists mainly of a monthly lubrication and a tightening of the packing gland. Future repairs can be made without tearing the floor up.

Piston spacings are varied. Five of the hoists can accommodate Transit buses and Twin Coaches and four are spaced to handle GMC and Mack buses. Each of the front H-type hoists can accommodate a 64-inch variation in wheelbase. Front hoist capacity is 8,000 lb and rear is 16,000 lb, providing a cushion of 20 per cent for future increases in vehicle weight.

Lift height is 60 inches, but this is largely a matter of roof height limitations. In the projected 18-hoist installation both pistons will have a 16,000 lb capacity so that buses may be backed on if desired.

Total installation cost for the nine hoists was $12,000 for material and $8,400 for labor.

The hoists were installed at a 20-degree angle. This arrangement allows ample space for two center lanes for storage, minor repairs and carpenter work, while still providing easy entry and exit on and off the hoist for vehicles.

THE CONSULTING DEPARTMENT

Our readers give opinions on the controversial question . . .

What Constitutes a Road Failure?

WE ASKED:

When is a road failure chargeable to maintenance?

When is it chargeable to operation?

AND HERE ARE THE ANSWERS:

A road call in our shop is any time a bus needs the attention of a mechanic whether or not there is a delay to the passengers. All road calls are chargeable to maintenance except those where the driver is directly at fault or has no trouble.

George H. Duensing,
Supt. of Maint.
Belleville-St. Louis Coach Co.

We class as a "road delay" any interruption in service exceeding five minutes. All other service calls are classified as "Road Calls." Our records show the miles per road call and the miles per day delay.

All calls and delays are charged to the maintenance department except accidents and traffic delays.

We make a daily report to the transportation department of any calls or delays which were caused by negligence or lack of training on the operator's part. However, these calls are all included in our maintenance records.

W. E. Williamson,
Supt. of Auto Eqpt.
St. Louis Public Service Co.

All road calls are classified as either "Pull-Off" or "Repaired In Service." A Pull-Off is charged when a coach fails in service and has to be replaced. This holds true whether or not there is an actual delay in service. We do classify them into Mechanical and Non-Mechanical. The latter is broken down into: Accident; Dirty Bus; Tires, and Nothing Found. Only mechanical pull-offs are used in determining our miles per pull-off.

Repaired In Service is any type of call that required the services of a mechanic but repair or adjustment made on the spot with no delay in schedule and without exchanging buses.

No breakdown is made of this category nor does this type of call figure in our miles per pull-off. Incidentally, since the Repaired In Service calls are usually taken care of by a minor repair or adjustment, they are a guide as to the efficiency of our inspectors who give buses the regular daily check.

V. E. Zimmerman,
Supt. of Maint.
Harrisburg Railways Co.

With the exception of tires, accidents and sick passengers, all failures are charged to maintenance. . . . We maintain a record of all road failures whether they result in a delay or not. The garage report must agree with the dispatcher's report in this respect.

A road failure resulting in a delay . . . of five minutes or more is classed as a road delay.

A. H. Williams, Asst. Gen. Mgr.
The Connecticut Co.

We class a road failure as any time the maintenance department contacts a bus on the road for any reason whatsoever. However, the maintenance department is not charged with the following type of calls: 1—When no trouble is found; 2—Accidents; 3—Dirty buses caused by passengers; 4—Engine drowned out due to rain; 5—Bus off roadway or stuck in ice or snow; or 6—Replacement for the convenience of the Transportation or Equipment Departments.

No distinction is made between a road failure and a road delay. Nor do we make any distinction between a bus replaced at the end of the line and a bus replaced in the middle of a run.

Torrens A. Smith,
Supt. of Eqpt.
Louisville Transit Co.

On our property, we charge a road failure when a coach fails to complete an assignment. Mechanical failures are charged to maintenance.

Lost time of a minute or more is classed as a road delay. If the delay is caused by other than mechanical failure, it is charged to the transportation department.

J. L. Osburn, Supt. of Bus Maint.
Houston Transit Co.

When any unit, fixture, attachment or part of the bus becomes defective after it leaves the garage and before it returns . . . it is recorded by us as a road failure.

Failures are divided into two categories. Those that should have been prevented by the shop (charged to Mechanical Department) and those that were unforeseeable, such as lamps, tires, accidents, etc. These latter are charged to "other causes". A road failure, as outlined above, which results in a schedule delay of five minutes or more is considered a "Road Delay."

J. N. Herring, Supt. of Eqpt.
Savannah Transit Co.

A road failure is defined as any condition or cause that requires an operator to call the emergency dispatcher. All such calls, even of minor importance, are cleared through the emergency dispatcher and passed on to the operating locations for service as required.

Road failures charged to maintenance are any mechanical failures to the equipment. This may apply to vehicular accidents as well when they are caused by defective equipment.

Transportation is charged for road failures due to accidents, except as

above, collisions, etc. They are also charged for mechanical trouble reported but not found, tire punctures caused by road hazards, and other failures not related to mechanical condition of the equipment. Bus changes made at end of run, if not scheduled, are classed as road failures.

We class as a delay to service any delay that exceeds five minutes duration. This period is considered maximum that could be allowed for operator to get back on normal schedule without time loss. Road failures are classified as with or without delay.

A. G. Lyons, Gen. Supt.,
Rolling Stock and Shops Dept.,
Philadelphia Transportation Co.

Our definition of a road delay is determined by the schedule time lost. If the delay is five minutes or more and is caused by mechanical failure, it is chargeable to maintenance. If no trouble is found, it is charged to transportation.

We class as a road call any repair or adjustment which may be made at the end of a scheduled run with no schedule delay. Our monthly report is shown in terms of miles per call and miles per delay. They both are expensive.

W. J. Buck, Supt. of Maint.
Washington, Virginia and Maryland Coach Co.

This is the set-up we use to tabulate road failures and delays:

1. Change-off—Any bus removed from service and replaced without loss of time to schedule or passengers. This might be for reason of Accident, Dirty Bus, Mechanical Trouble or need for larger bus.

2. Pull-in—Any bus removed from service (under its own power or towed in for any of above reasons) without schedule replacement, thus causing time loss to passengers and hole in service.

3. Delay—Delay to passengers or bus, but bus was able to continue after delay. This may be due to accident; mechanical failure, weather, traffic.

4. Road Call—Mechanical failure corrected on the road by a mechanic so that bus does not have to be removed from service.

Statistics are made up from the information as received from the Transportation Department. As of late years, auto traffic has greatly handicapped road repairs.

Claude Timblin, Mgr. of Maint.
Youngstown Municipal Railway Co.

The yardstick used on our property to determine when a road failure is chargeable to maintenance is the nature and cause of the failure. If we find that the trouble was caused by material failure, such as burned out bulbs, blown fuses, twisted axles, broken springs, etc., maintenance is not charged.

If we find repairs are required due to mechanical failure which should have been foreseen, it is charged to maintenance. . . . We classify a delay as any time when more than five minutes is lost on any given trip.

All service calls are made by pull-off. No vehicle is repaired on the street.

C. R. Sawyer, Supt. of Maint.
Portsmouth Transit Co.

Every time a bus is taken out of service, regardless of the cause, it is classed as a road call. If a large number of buses are taken out due to operator fault, with the cooperation of the transportation department, we generally single out these operators for instructions.

At the end of each month, road calls are divided into time lost (six minutes or more) and no time lost. . . . A sheet is posted in the garage . . . listing the number of calls for each type failure . . . Opposite each failure is a note as to its prevention.

L. P. Reilly, Supt. of Eqpt.
Chicago & West Towns Rys., Inc.

Road failures on our property are classified as either five minute delay to service or complete replacement of a bus in service. The latter classification is used even when there is no actual delay in service.

They are further classified as follows: A—Mechanical—failure due to mechanical or maintenance reasons. B — Operation — Accidents, unsanitary, etc. C—Tires—All tire failures. D—Miscellaneous—This includes no trouble found when coach is checked. AA—Unit Shop—Road failure due to defective rebuilt part that fails after a few miles of service.

C. L. Menne, Gen. Supt.
Connecticut Railway & Lighting Co.

On this property a road failure can be defined as any interruption of service due to mechanical deficiencies.

A road failure is charged to maintenance when a mechanical breakdown of any component unit or safety device renders the bus unsafe, uneconomical or impossible to operate.

A road failure is charged to operation when due to bus transfers on operating routes, a bus is kept in service an excessive number of hours and runs out of fuel, or if a bus is involved in an accident of any kind, causing a delay in service.

Since our coin boxes and tires are maintained by other departments or contractors, any road failure of these units is chargeable to the respective department or contractor.

James B. Edmunds,
Asst. Gen. Supt.
New York City Transit Authority

It is so difficult to define a road failure that we make no attempt to do this. We have a cross check system whereby the buses' record shows repeat road calls as well as operators reports.

We have found that a very small percentage of our operators are road call prone and with cooperation from the transportation department, these operators can be straightened around. This procedure has kept our road calls down to a minimum.

E. C. Krueger,
Gen. Supt. of Eqpt.
Indianapolis Transit System, Inc.

When a coach fails enroute and has to be repaired on the road or towed into the garage, we consider it a road failure. When a coach is replaced at the end of a run for any reason, even when no actual delay has occurred it is still classed in the same manner.

We class as a delay any situation such as a snow-storm, obstacle on the road, etc. which prevents a coach from completing its assignment.

H. J. Bars, Asst. Mgr.
The Bristol Traction Co.

All road failures are charged to maintenance. Failures are broken down in the following manner: (a) Fare Box; (b) Tires; (c) Miscellaneous—to include dirty coaches, bad weather conditions, no trouble found, etc.; (d) Accidents; (e) Equipment failures—everything not charged to first four classifications.

Only accidents are charged to operations. They are also accounted for in the maintenance reports. When there is doubt about trouble on a specific coach, or the same trouble is reported by the same operator, a liaison man, operating between the maintenance and operations departments, handles the trouble.

There is no distinction between a road failure and a road delay. We class as a failure or delay any trouble which requires the help of a maintenance man while a coach is in service.

W. R. Glass,
Gen. Foreman, Coach Maint.
Dallas Railway & Terminal Co.

In answer to your question "What is a Road Failure?", we make out a road failure report on every bus that fails to complete its run. We do not charge operations as the management thinks all road failures are chargeable to maintenance.

We do not list as road failures those vehicles changed at the end of a run. We have never defined a delay.

A. C. Ellington, Maint. Supt.
Suburban Transportation System

A road failure is any piece of equipment that does not complete assignment due to mechanical failure or anything which may be caused by neglect in maintenance or operation.

All failure calls received are completed. The trouble reported by the operator . . . is compared with the trouble found by the mechanic. If both agree, and it is found to be a mechanical failure, it is charged to maintenance. If they cannot agree . . . we investigate and charge the department in error . . . for example, in the event of an accident, the operator may report brake failure. If this is found to be the case, the accident is charged to maintenance.

We do not consider it a delay or road failure when we replace equipment at the end of the run. It often indicates good judgment by the operator, resulting in better maintenance of equipment and better quality of transportation.

W. L. Shelton, Supt. of Maint.
A. B. & W. Transit Co.

A road failure or road call occurs when, for any reason, a man has to go out to a bus either to replace it or repair it. On routes which pass the garage, if the bus stops for maintenance reasons, it is still considered a road failure.

Road calls fall into four groups: No Delay—When a man meets the coach at a predetermined location and no time is lost. Service Delay—When scheduled time is lost in either repairing or replacing bus. Tow-In—When a bus must be towed back to a garage. Pull-In—When a bus is pulled out of service . . . and replaced with another bus, but is able to make garage under its own power.

Calls not chargeable to maintenance are: Changeoff for Transportation department purposes; Acts of God; Passenger sickness; Fare box or register trouble; Tire or chain failure. In summary, any call of a nature not directly connected with the mechanical operation of the bus or a condition over which we have no control.

Edw. R. Schulte,
Supt. Plant & Eqpt.
Lehigh Valley Transit Co.

What is sometimes referred to as "road failure" is termed as a "mechanical road delay" on our property. The reason we use this term is to distinguish it from a delay which may be the result of an operating or transportation problem.

A delay is any interruption of service of five minutes or more at the terminal or enroute. If such delay is the result of mechanical trouble, it is charged as a mechanical road failure and is the mechanical department's responsibility. However, if the delay is because of mechanical failure, but is the result of improper action on the operators part, the delay is charged to transportation.

J. A. Moreland, Vice Pres.
Fifth Avenue Coach Co.

We certainly agree that answers to this question are legion and we doubt that a practical standard definition could be developed. For one thing, company policy is involved. This would not change simply to meet a standard definition.

Therefore, we are reconciled to improving our own record without bothering much about how our record compares with other properties.

In answer to one specific question, if a coach is replaced at the end of a run for a mechanical defect, although no actual delay has occurred, it is classed as a road failure.

We keep records on delays, changes and road calls involving reported mechanical troubles. Any interruption to service for any mechanical cause which results in a bus dropping behind in its schedule to the point where it cannot get back to its run on time, except by turn-back, repair or replacement is classed as a delay. . . . In approximately 45 percent of our total road calls chargeable to maintenance, there is no delay to service.

K. M. Kendall, Supt. of Eqpt.
San Antonio Transit Co.

We agree that a standard definition for road failures would be desirable. In fact, it seems ridiculous for us to spend time comparing data unless all properties standardize. Present procedure only invites management to unfairly appraise (over-rate or under-rate) the job done by their maintenance department. We are currently inclined to compare our records with a previous month or year in our own operation, rather than with some other property or group of properties.

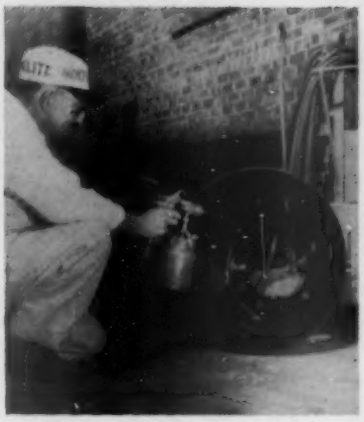
We feel a road failure exists when the schedule is interrupted for road repairs, or when it is necessary to replace a coach for operational or mechanical reasons.

Maintenance road failures are classified as only those directly related to the mechanical condition of the coach. Those failures due to accidents (unless chargeable to maintenance), vandalism and other related operating conditions are classified as operational road failures.

With respect to the difference between failures and delays, we feel that it is entirely a matter of severity. If a delay requires sufficient time to make repairs so that schedules are interrupted, and service on part of

Continued on page 99

1. CHEMICAL BATH lasting 12 hours removes dirt and grease from wheels, reveals cracks or flaws and prepares wheels for the mounting of new tires.



2. WHEELS ARE BALANCED and painted to protect them from flying dust and rocks which pit metal and give rust a foothold. Paint adds years to wheel life.

3. SUPERVISOR RAY CHAMBERLAIN checks roundness on this device. One-eighth inch out is all that's allowable; machine checks deviation up to one-sixteenth.

6. STANDARD RE-GROOVING MACHINE is used by Dan Cannaday to re-groove a worn tire. New tires at San Diego are always placed on front wheels . . . are run 30,000 miles. Air-driven motor—devised at San Diego—powers re-groover.

7. AFTER RE-GROOVING, tires run another 10,000 miles in front. Air impact wrench eases tightening job.

San Diego Watches Details

SAN DIEGO TRANSIT SYSTEM operates its buses over hills, through canyons and on narrow and unimproved roads with the result that it experiences more than average tire wear.

Despite these conditions, in 1953 San Diego operated more than 12½ million miles and had only 42 tire failures—an average of nearly 300,000 miles per failure.

The pictures above show how San Diego does it. Rather it shows how its tire department, representatives of a major tire company who "live" at San Diego, do it. It's no secret; it's just routine servicing and inspection followed to the letter.

The remarkable tire record also indicates how closely San Diego's maintenance department works with the tire supplier's crew. On many occasions, the five man tire department calls attention to mechanical flaws which affect tires. Co-operation like this serves to detect trouble before it can interrupt service to the public.

4. "BAGGING" A NEW TIRE, aide Jerry Reynolds sees that the valve stem is placed in the right spot for balance. Liberal use is made of soapstone to prevent tubes from sticking to tire casings. Soapstone also allows rubber to "breathe."

5. SPECIAL TIRE BAR developed in the San Diego shop is brought into play by Frank Thompson. The bar makes it possible to force the bead of the tire on the rim without pounding with a mallet, risking a damaged or cracked flange.

8. TIRES OF EQUAL DIAMETER must be "mated" for use on dual rear wheels. Dan Cannaday uses accurate (to one-sixteenth) measuring bar to make sure tires are evenly matched.

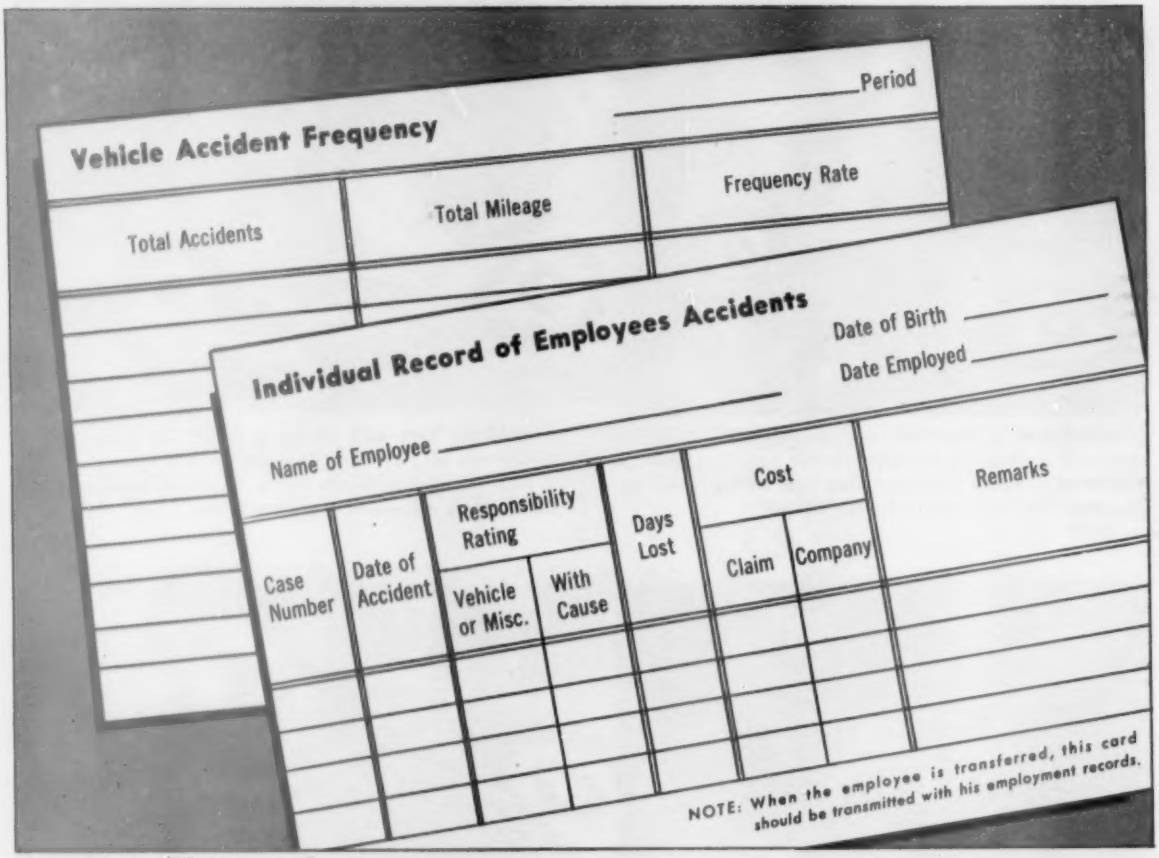
9. DAILY INSPECTION for stone bruises, signs of wear and low pressure is made. Another shop innovation, a portable air compressor, is used by George Averill to add air once a month.

And Gets More Tire Miles

San Diego gets from 100,000 to 250,000 miles from each tire. New ones are run about 65,000 miles and are then recapped. Recaps are good for approximately 40,000 more miles. Some tires are recapped as many as four or five times, depending, of course, on the condition of the carcass.

The five men who are responsible for keeping tires in top condition at San Diego are Supervisor Ray Chamberlain and assistants Dan Cannaday, George Averill, Frank Thompson and Jerry Taylor. It is up to them to fulfill their company's guarantee to keep San Diego's buses operating without tire failure at the lowest cost per mile.

Every four years the nation's major tire manufacturers are invited to bid for the task of keeping San Diego's buses rolling without tire failures. The present manufacturer had held the contract for five years, and the nine photos above show how he manages to do the job.



Accurate accident records can serve as...

An Effective "Control Center" for Your Driver Safety Program

This is the third in a series of four safety articles by Edgar G. Quesnel, renowned transportation consultant. The first two articles appeared in the March and April issues. The concluding article, on "Incentives and Awards," will appear in October.

WE'VE ALREADY DISCUSSED the major components of a good safety program, and the role of management in setting up that program and seeing it through.

Once it's underway, management needs a control center . . . something to tell it how its safety program is coming along . . . where it's weak . . . how it can be improved and strengthened.

Safety records can serve as that control center, if they are properly kept and used. That leads to these important questions about safety records . . .

1 Why keep safety records, and how should they be used?

You don't record fact-finding information just for the record. It must be for a purpose.

Records of themselves are of little value. It's their use that's important. You need impartial review and appraisal, followed by deliberate and prompt action if your records are to be of value.

Regardless of circumstances, every occurrence or sequence of occurrences leaves a "trail of facts." It's the part of good management to see that these facts are collected, recorded and analyzed.

It may be well here, though, to draw one distinction . . .

Fact finding is not fault finding. Misconception of these two ideas is fairly common . . . and may cause a lot of trouble. To find fault is a poor way of correcting

anything; to collect and record facts is good business. Indeed, accident facts are so important that you can't run a bus company without them.

That's why it's essential that our fact-finding machinery be in good running order and based on sound and practical business principles.

If it is, management has the control center it needs to keep constant tab on its safety program.

Granted that accident records are vital, and will do the job management wants them to do, the next question is this . . .

2 What safety records should be kept? . . .

Listed below are various types of safety records which are essential for effective safety work.

They're helpful in locating and measuring accident hazards. They are useful, too, in determining accident causes and as aids in establishing preventive methods.

1. Individual records for each bus driver, showing types, cause and responsibility of all accidents in which he is involved.

This record should be reviewed at frequent intervals, and the necessary action taken on those cases which demand special attention.

Types of accidents are usually classified as follows:

1. Straight ahead
2. Passing
3. Turning
4. Parking
5. Head on
6. Rear end
7. Backing
8. Miscellaneous

Collision classifications are:

1. Pedestrian
2. Fixed object
3. Moving or standing vehicle
4. Railroad train
5. Animal
6. Miscellaneous

Causes of accidents are classified this way:

1. Poor judgment
2. Failure to grant right of way
3. Lack of proper observation
4. Taking a chance
5. Speed
6. Skidding
7. Violation of traffic laws
8. Failure of equipment
9. Failure or negligence of others
10. Drowsiness
11. Physical disability
12. Miscellaneous

Responsibility for accidents is generally broken down into the following categories:

1. No driver responsibility
2. Company responsibility
3. Driver partial responsibility
4. Driver total responsibility

The fixing of responsibility is sometimes difficult, but it is important to determine who was responsible. Therefore, this phase of accident reporting should be included in all accident statistical procedure.

2. Report of each accident should be required every time a driver is involved in a mishap. He should fill out the report form at the scene of the accident. The form itself must be provided by the company and be readily accessible to every bus driver.

3. Accident frequency records should be kept. As a means of measuring that frequency, the following nationally accepted formula should be used:

Multiply the total number of accidents over a given period by 100,000 and divide by the total mileage for the same period. For example, five accidents multiplied by 100,000 divided by an actual mileage of 125,000 equals a frequency rate of 4.0.

Driver's individual record should be kept on convenient form for ready reference.

It should include, in addition to personal data, date of each accident, its type, who was responsible, cost of the accident, kind of bus involved. In addition, it is recommended that this record show the driver's IQ, date of medical examination, type of driver's test and results, past penalties inflicted and safety or other awards.

3 What analysis of these records will show . . .

From such data a careful anaylsis may disclose that a driver has become incapable of safely operating his bus, but may be entrusted with other duties quite satisfactorily. In this case a transfer would be desirable.

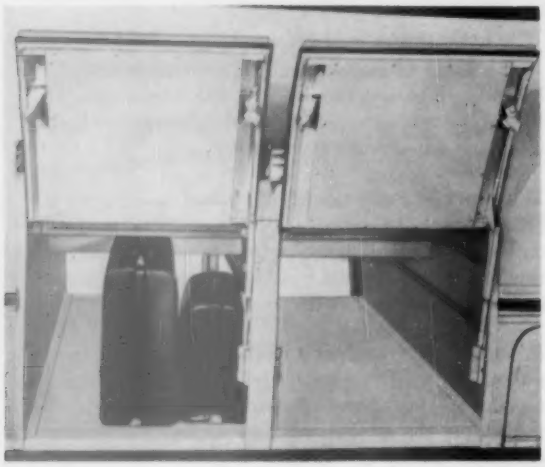
Sometimes the records show that a driver may operate a bus satisfactorily in the city, but becomes a hazard when driving similar equipment on the highways, where higher speeds are necessary.

Likewise, complete records may indicate an exceptionally well-qualified man capable of assuming additional responsibility and recognition.

In general, too much importance cannot be attached to the value of complete and accurate data on individual drivers, their accident histories or safety performance. It serves as a means of fitting the right man to the right job and making driver personnel transfers which should be to the advantage of both employer and driver.

Safety saves money, too . . . for if more time is spent in analyzing bus drivers, their safety and accident record and performance, less time will be spent in making repairs, paying claims and trying to pacify passengers who have been inconvenienced or injured.

WHAT'S NEW

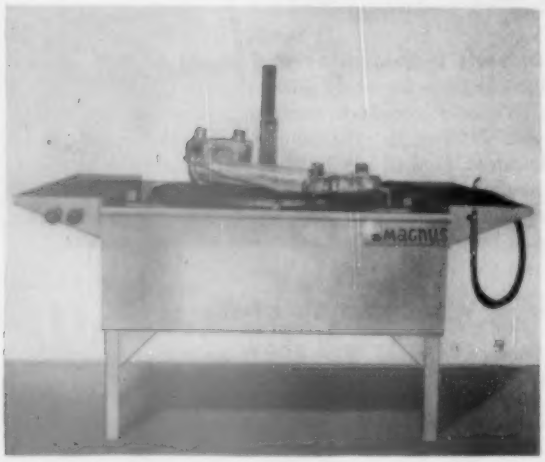


New underfloor baggage compartment...

. . .which provides 56 cubic feet of space has been added to GM TDM-4514 suburban bus model. The compartment, without partitions, is 85½ x 56 x 24½ inches high and is located in two bays immediately behind the spare tire compartment.

It extends the full width of the coach, and is accessible through four doors—two on each side, bringing all cargo within reach of the driver.

The doors, which unlock with a removable crank and open the full height of the compartment, are suspended on patented rubber hinges, which together with rubber seals around the sides and bottom, completely insulate the compartment against water, slush and dirt. Illumination is provided by four lights which go on automatically when doors are opened. *General Motors Corporation, GMC Truck and Coach Division, 660 South Boulevard, East, Pontiac 11, Mich.*



New type radiator-leak testing tank . . .

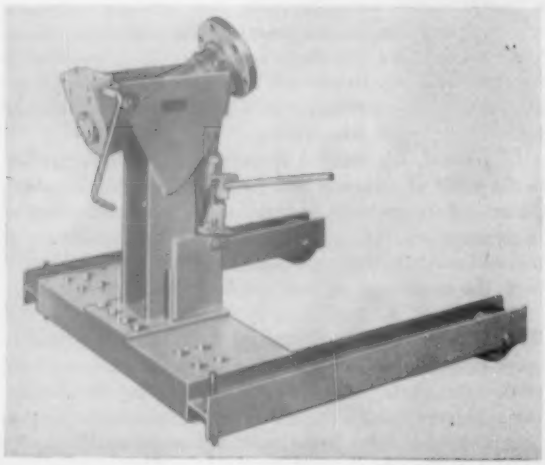
. . . for efficient handling of all types of automotive radiators is now on the market.

The test and repair stand consists of a rugged tank provided with a work platform that is raised and lowered by compressed air. The platform and core rotate so leaks can be easily spotted and repaired without heavy manual labor by the operator.

A similar type outfit, provided with heating coils, has also been manufactured for the cleaning and stripping of radiators.

A bulletin, No. 4001, fully describes the test and repair stand, as well as boilout tanks, flow meters and rinse cabinets.

For a copy of the bulletin and complete information on the testing stand, write to *Department BT, Equipment Division, Magnus Chemical Company, Inc., 39 South Avenue, Garwood, New Jersey.*

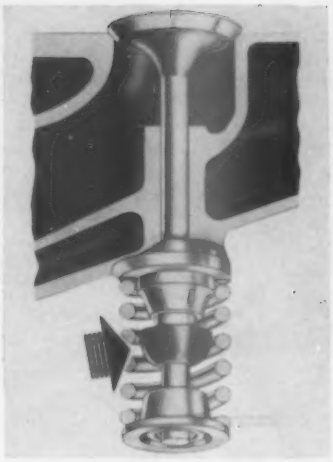


"One-Man" engine work stand . . .

. . . which combines the advantages of end roll-over operation and bench-level working height has recently been announced. With it, a mechanic can raise or lower an engine weighing up to 5,000 lbs in one operation without help, or the use of auxiliary equipment.

Designed for side mounting of an engine, the stand permits rotating the engine 360 deg in a vertical plane by hand operation of a crank which operates a 60-to-1 ratio worm and drive gear that revolves a heavy duty spindle. The spindle is hinged and can be tilted up with the stand's hydraulic jack to provide the required swing radius for the engine.

At maximum spindle tilt the swing radius is 34 inches. Opening of the hydraulic jack's relief valve returns the spindle to its horizontal position at a controlled speed. *Bacharack Industrial Instrument Company, 7301 Penn Avenue, Pittsburgh 8, Pa.*



Valve stem oil deflectors . . .

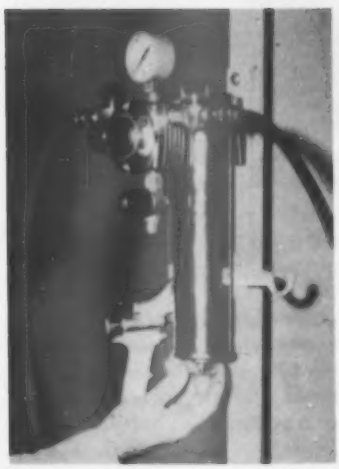
. . . molded from Hycar American rubber, are said to eliminate one of the causes of sparkplug fouling in overhead valve engines.

The parts are installed on valve stems and prevent oil from running down the valve into the combustion chambers. This not only curtails spark plug fouling but also reduces oil consumption and carbon formation. Brummer Seal Company, Chicago Heights, Ill., designed the deflectors, which are molded from Hycar, a product of *B. F. Goodrich Chemical Co.*

Vickers brings out new flow control valves...

. . . for power steering systems in buses where the hydraulic pump does not include a flow control valve are now on the market.

The valves, which are known as model series FM2, are said to improve performance of steering booster units by providing a relatively constant volume of oil to the booster regardless of engine speed variations. All oil entering the valve from the pump is directed to the booster up to the capacity of the valve. *Vickers, Inc., 1400 Oakman Blvd., Detroit, Mich.*



Oil and moisture separator . . .

. . . for cleaning of compressed air has recently been introduced. The new unit, designated P-HLE, is a high capacity 50 c.f.m. with power regulation.

The combination unit, embodying separator and regulator, will regulate presures up to 135 psi from an air line carrying pressure up to 250 psi. The oil and moisture separating unit has a centrifugal type oil and water eliminator which is all metal, and the filter is a permanent type. *DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio.*

Here are some other NEW PRODUCTS that are described more fully in another part of this issue. Don't miss them . . .

- **Steam jet cleaner**—said to be lower, lighter and more easily maneuvered p90
- **Electric soldering gun**—weighs only one and half pounds p90
- **New vulcanizer**—designed to repair permanently any size of tube, from bike to bus p93
- **Portable steam cleaner**—featuring a completely automatic operation p93
- **Air cooled cushion**—operates on the principle that evaporation is a cooling process p93
- **Fuel filter**—that blocks passage of foreign particles to the carburetor p94
- **Two new scrub sweepers**—includes a 44 inch marvel sweeper and a 34 inch sweeper p94
- **School bus power sander**—designed to insure safer operation over hazardous winter roads p95
- **Drill press vise**—with removable steel jaw plates and a heavy Acme thread adjusting screw p95
- **Oil filter**—for both gasoline and diesel engines p95

Continued on next page

NEW SILVERSIDES COACH WITH AN OVERALL LENGTH OF 35 FEET, AND OVERSIZE PICTURE WINDOWS OF SUNSHADE GLASS.

New 1954 Deck and a Half Coach Is Introduced by C. D. Beck

C. D. Beck

C. D. Beck and Company, Inc., has recently put into production at its Sidney, Ohio plant a new 1954 deck and a half bus.

The new silversides coach model has a seating capacity of 37 passengers . . . 29 in the top deck and eight in the lower deck, with an overall length of 35 feet.

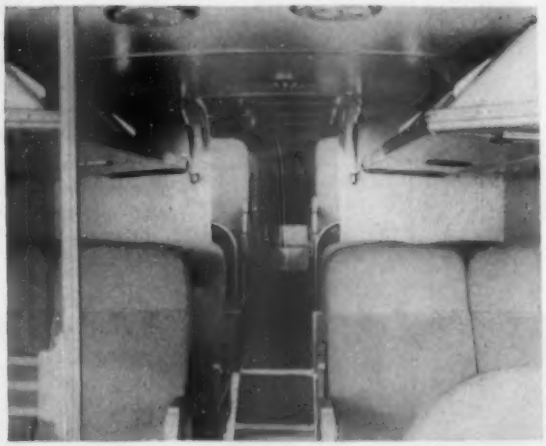
Sunshade glass is used throughout to aid passenger comfort, and the entire coach is completely air conditioned. The new deck and a half coach is diesel powered, and features the tandem axle which has been used by Beck for the past five years.

Other features of the new coach are its extremely modern exterior and interior design, its new oversize picture windows, and its full reclining seats.

The 1954 deck and a half will have the advantage of a new organizational setup of C. D. Beck and Co., which has been steadily engaged in increasing its production facilities.

Due to the recent deaths of Charles Peterson and Taylor Cummins, both of whom were directors and stockholders in C. D. Beck and Company, Inc., as well as the retirement of Hal Peterson, also a director and stockholder, C. D. Beck purchased all of their interests, as well as the interests of the remaining stockholders.

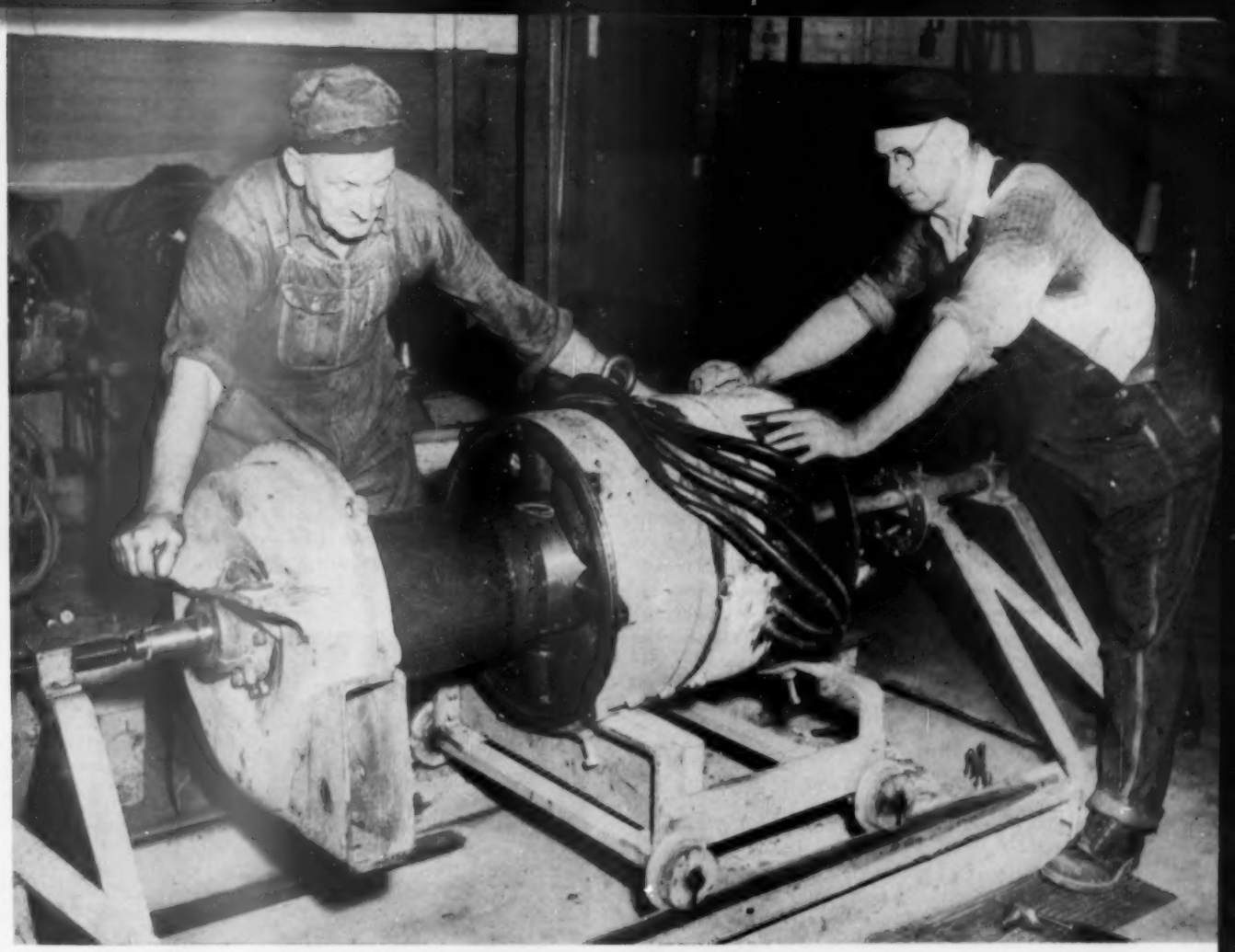
By making this move, C. D. Beck and Company, Inc., is now in a position to make any changes in policy covering sales, production and engineering as may be required from time to time, depending on the requirements of the bus industry.



INTERIOR of the bus shows seating arrangement with 29 passengers in the top deck and eight in the lower deck.

In this way the company claims it offers a program designed to meet the operator's requirements. This new setup will also help facilitate the development and sales of its deck and a half series which it has been working on over the past five years, and which it terms "the Bus of Tomorrow—Today."

Continued on page 90



Overgreasing is ended as...

Sealed Bearings Prove the Cure For Trolley Bus Motor Failures

By N. Wallace Henry • *Chief Engineer*
The Memphis Street Railway Co.

THE MEMPHIS STREET RAILWAY COMPANY, one of the pioneers in trolley bus operation, today operates a fleet of 229 trolley buses approximately 9,500,000 miles a year, in addition to a fleet of motor buses.

Not unlike other companies who have converted all or a portion of their electrically propelled equipment over to trolley buses, we carried into our preventive maintenance program, particularly as it applied to traction motors, the practices and procedures which had prevailed in maintaining street car motors.

On our property this consisted of establishing an overhaul of the traction unit on an approximate 18-month interval, or a basis of 75,000 miles. At that time the unit was removed from the vehicle, the armature cleaned, dipped, baked, tested and where needed, bands renewed and bearings replaced. In addition, the fields were cleaned, tested and painted with insulating paint.

But in the process of carrying out this program, bearing maintenance turned out to be one of our major problems. We felt for some time that we were not obtaining the maximum bearing life which should prevail in this type of application.

Our experience indicated that any attempt to use the bearings beyond 150,000 to 160,000 miles, in most instances, resulted in trouble before the next regular overhaul period.

Coupled with this bearing trouble, we also experienced an abnormal number of failed motors due to grounded armatures. We requested representatives of the traction

Continued on next page

motor manufacturer to investigate and discuss both of these problems with us.

As a result of this investigation, we were able to trace our bearing and armature trouble to overgreasing between overhauls or a lack of adequate control of that phase of our maintenance program.

The overgreasing resulted in sufficient contamination and excessive friction within the bearings to cause retainer failure and bearing loss. By the same token, overgreasing resulted in excessive amounts of contamination collecting in the air passage of the armature. This caused overheating of the armature coils and breakdown of coil insulation which, in turn, led to an excessive number of grounded motors.

Obviously, the solution to the problem lay in properly controlling the greasing procedures between overhaul periods.

We were told of results of tests conducted on a special grease manufactured for locomotive traction motors in which the bearings were packed at motor overhaul. In addition, lubricating fittings were removed, plugged with a pipe plug and a cap welded over the plug, upon which the instructions, "DO NOT LUBRICATE," were stamped to insure that no attempt would be made by the greaser to lubricate the bearing.

We were also told of a test being conducted by a transit property in maintaining traction motors on PCC cars, and decided to establish a similar practice of sealing and lubricating the traction motors in our fleet of trolley buses.

It was suggested by the manufacturer that we set up a group of experimental motors for test purposes. In view of our previous experience, however, we determined to lubricate and seal all of our motors since it would take approximately two years to complete this program.

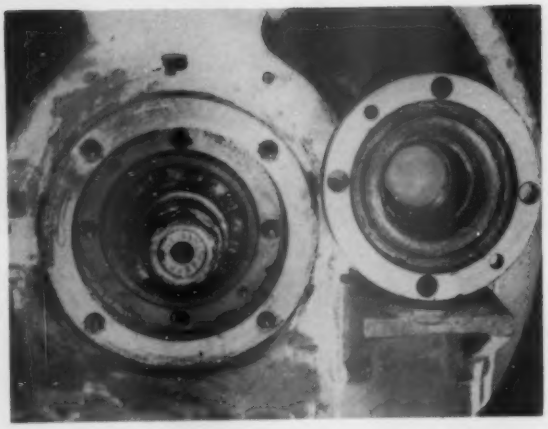
At the same time we set up control tests to obtain laboratory analysis of the grease; and instructed our inspectors to observe those vehicles in which the bearings were sealed and check for grease leaks, particularly on the commutator end of the motor where such leaks could be detected readily.

In conjunction with this program we constructed an air-agitated drum for cleaning purposes. Motors are now immersed in this tank in which a mixture of solvent and an emulsifier are agitated. After a thorough agitation, the armature is steam cleaned.

From the cleaning room the armature is dried in an electric oven at 150° for 16 hours. It is then removed from the oven and tested for insulation resistance. After testing, the armature is dipped in an insulating varnish and returned to the baking oven for baking of the varnish.

Upon being removed from the baking oven, the commutator is reconditioned, and the armature given a final test and reassembled in a motor frame which has been cleaned and in which the fields are tested and painted with insulating paint.

In the process of reassembling the motor, a long fiber sealing grease is first applied to the bearing housings. The proper amount of special bearing grease is weighed out, 2¼ oz. on commutator end, 3½ oz. on fan end, and the bearings hand packed. Both bearings and housings are preheated in an electric oven before being mounted and, after the motor is reassembled, are ready for service.



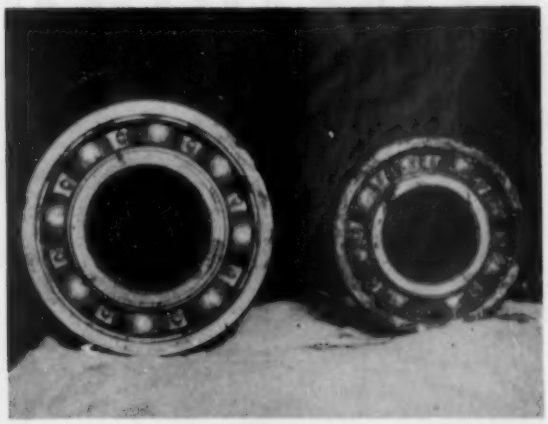
Perfectly lubricated bearings at the commutator end of traction motor after 22 months' use. Note grease seal in cap.

Long-fibered sealing grease is visible on the outer races of the two bearings. View is from sealed side.

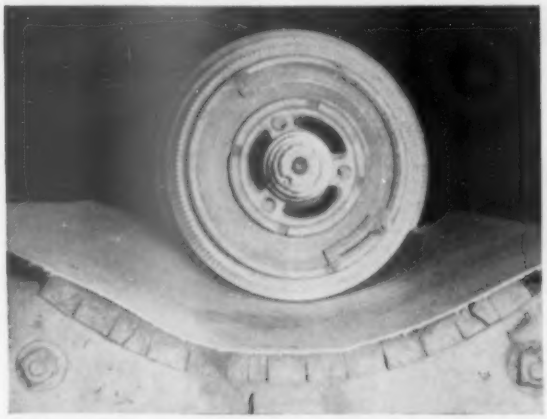
We initiated this program of sealing our traction motors in May, 1952, using the same special grease which had been manufactured for locomotive traction motors. At the end of 10 months we removed the first sealed motor for inspection of the bearings and to obtain a lubrication analysis. A visual inspection of the bearings satisfied us that the bearings were good for additional mileage and they were placed back in service. Reports of the engineering analysis of the grease were also favorable. able.

Twelve months later, and 22 months after being placed in service, we inspected the second unit to be sealed and placed in service. In this instance, in addition to obtaining an analysis of the grease with this accumulated service, we also removed the bearings and returned them intact to the motor manufacturer for analysis. Reports

Cap removed from fan end of same motor shows a similar grease seal. Cracks in seal indicate it was disturbed upon removal.



Closeup of bearings after 22 months of service shows them still well lubricated. Before, bearings were greased every 18 months.



Ventilating ducts of the armature are still clear after 22 months of service with sealed bearings and special grease.

Under the old system, overgreasing frequently caused plugging of ducts in armature core because of contamination.

on both the condition of the lubricant and the bearings were very satisfactory.

At this time we are planning to make future bearing inspections and laboratory analysis of the lubricants of at least one control unit at each six-month interval.

Our initial program had two purposes: Adequate control of lubrication to improve bearing life; reduction to a minimum of motor failures due to grounded armatures.

During the 23 months in which this program has been conducted, there has been but one failure of a bearing on a motor in which the bearings were sealed. We were able to trace this failure to an improper fit to the armature shaft.

Our motor failures due to grounded armatures have been reduced from 37 in 1951, and 30 in 1952, to 7 in 1953. So far in 1954 we have had one grounded armature, as compared to 5 for the same period in 1953.

At this stage it is too early to reach final conclusions as to the over-all benefits which may result from sealing the bearings and the use of the special lubricant in our trolley bus traction motors. However, favorable reports of experience with sealed bearings and the use of this same lubricant for a number of years in locomotive traction motor maintenance are very encouraging.

Based on the above, and coupled with our experience thus far, we are of the opinion that our initial goal of extending the interval between overhauls from 18-24 months to 36 months will be exceeded.

In addition, we are of the opinion that we will have a marked improvement in bearing life, due to eliminating contamination of the grease and relieving excessive stresses set up within the bearings due to overgreasing.

Consequently, the improvements in the field of lubrication for this type of service will make possible a reduction in the cost of maintenance of trolley bus traction motors in the future for Memphis Street Railway.

HOWJADOITS

1. Readying a shock absorber assembly for rebuilding and rebushing, Sherman Kidd fits it to a modernized jig.

2. Shop-made "puller" is used to pull the rod from the assembly before Kidd reworks and cleans the assembly.

3. Holding bolt is being tightened here. Preliminary work is done while assembly is secured in this position.

4. Rebushing the piston cylinder, a hone is used with a power drill to clean and buff the cylinder walls.

Rebuild Shocks and Cut Costs

• A NEW TWIST to an old idea is expected to save Atlantic Greyhound Lines about $5,000 this year.

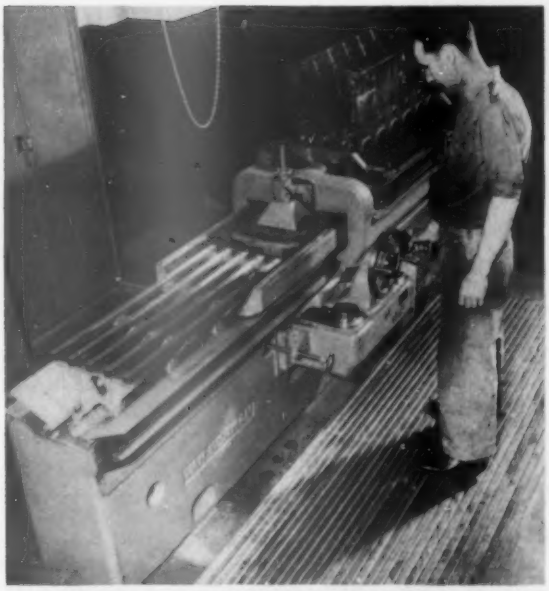
AGL is rebuilding the shock absorbers used on its fleet rather than farming the work out as it had since the end of World War II. To take on the job slight modifications were made to the jig and a few up-to-date touches were added.

The rebuilding of all shock absorber assemblies on the AGL fleet (except Highway Trailer Air-Rides) is the responsibility of veteran mechanic Sherman Kidd of Atlantic Greyhound's Charleston, S. C., garage.

In addition to the saving over the cost of having the work done on the outside, AGL will also benefit from streamlining the rebuilding and rebushing procedure by being able to keep a smaller supply of parts on hand.

The pictures above, originally printed in AGL's Atlantic Courier, show how the process is carried out . . . for the comfort of the passengers.

Used at Atlantic Greyhound Lines, Charleston, South Carolina



Surface Grinder

• MODERN MACHINERY and efficient shop equipment have helped St. Louis Public Service Company consistently to hold down maintenance costs year after year.

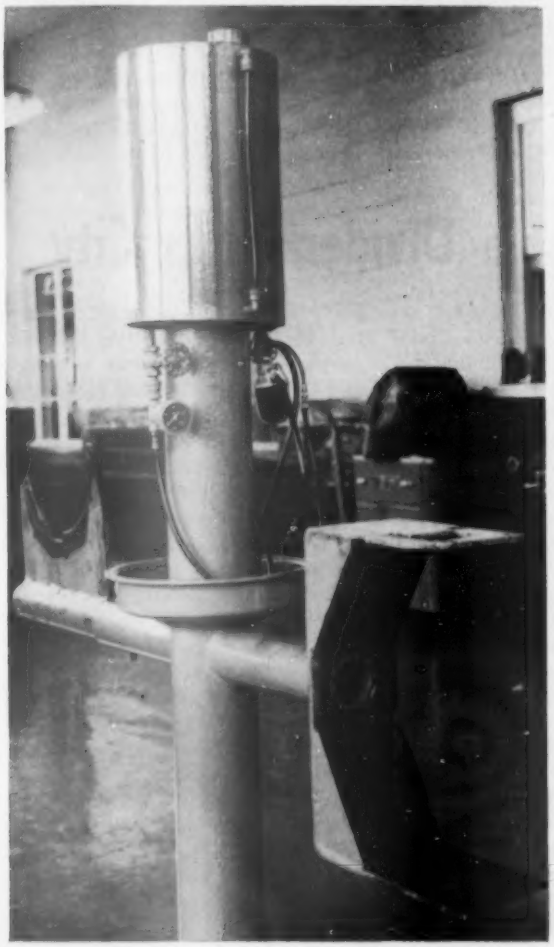
A new surface grinding machine pictured at left assures a high degree of accuracy when the mating surfaces of cylinder blocks and cylinder heads are machined.

This grinder, designed by Van Norman, cost St. Louis $7,100, but on the basis that it will handle about 200 jobs per year, it is estimated that the machine will pay for itself in two years.

Estimates on resurfacing jobs if done by outside specialists would be from $15 to $20 per unit, amounting to an expenditure of about $4,000.

Use of modern shop machinery and tools has helped St. Louis win for itself a national reputation for low cost maintenance. It also has helped this company to become a consistent winner of the annual Maintenance Efficiency awards.

Used at St. Louis Public Service Company, St. Louis, Missouri



Seal Test Stand

• A SHOP-MADE TEST STAND is used to test turbine seals in transmissions at the shop of San Jose (Cal.) City Lines.

Carbon seals which are so sensitive that they might develop leaks if even touched by a mechanic's hands are used in the transmissions. And in the case of a leaking seal it would become necessary to pull the transmission from the bus.

After the seal is installed in the turbine, the transmission is secured to the stand on the bracket shown in the photo on the side nearer the camera. (The bracket on the far side of the test stand is for holding differentials while they are being worked on—a bonus advantage of this Howjadoit.)

Operating pressure of 45 to 50 lb is built up in the tank on the top of the stand. If torque converter fluid leaks past the seals when the pressure is applied the seal is defective and is replaced. Obviously it is much easier to replace the seal when the transmission is on the test stand.

The test stand itself is merely a column of six-inch gas pipe to which is welded a bracket of half-inch boiler plate.

The tank secured to the top of the pipe is fed by the shop air lines. Cost to San Jose Lines for the device was about $85.

Used at San Jose City Lines, San Jose, California

INDUSTRY IN REVIEW

Dallas Swaps Dividends for Tax Relief

• A DIVIDEND SLASH, a tax reduction and a new zone fare system are expected to put the ailing Dallas Railway and Terminal Co. back on its feet.

After some four months of negotiation and meetings between officials of DR&T and city officials, a new plan has been worked out that will give the company two cents more per rider than the old system.

In addition, the city has agreed to halve DR&T's gross receipts tax if the company will in turn halve its dividends. The resulting windfall will be used to modernize equipment.

Dallas Railway, which had estimated it would lose almost a million dollars in operating revenue for a two-year period, now can go ahead with a two and a half million dollar modernization program including a complete conversion to buses. Plans call for the purchase of 125 new vehicles at a cost of about $20,000 each.

The Dallas slump in transit travel is directly attributable to automobiles, television and the five-day week, said President W. R. Burns. But the biggest villain is the auto.

Now at least there's a ray of hope. The company's zone fare, although completely strange to DR&T, may be the answer. Said Burns, "We're hopeful . . ."

Here's the way the new zone fare works:

Rides beginning and ending in one zone (without crossing zone lines) will cost 15 cents.

Rides beginning in one zone and ending in an adjacent one costs 20 cents. Inbound passengers pay entire amount; outbound pay initial fare of 15 cents and additional five cents upon alighting. These riders will also get a transfer indicating in which zone they boarded.

For those traveling through three separate zones it costs an initial 15 cents plus five cents for each zone boundary crossed. Fares are payable in the same way in which two-zone fares are paid.

Passengers going from the third to the second to the first and back to the second and third zones will pay their initial fare and half of their zone fare when boarding, half when alighting.

Does it sound complicated? Well it wasn't for Dallas residents who took to the new system easily on July 7, when the plan went into effect.

Naturally there was some confusion, but "We had expected a lot more," said Transportation Super Tom Owens.

A two-week briefing of all DR&T operators preceded the switch with the result that they were all thoroughly familiar with it. There were few complaints, Owens reported.

When the zone fare went into effect, the use of weekly permits ended. The permits, which cost riders $1.25 and which gave them unlimited rides at five cents, were an experiment approved by the City Council a year ago.

About 63 per cent of DR&T riders were unaffected by the change in fare collections. The bulk of the new revenue will come from two-zone riders who will pay from three to five cents over the old fare setup.

Meanwhile, Dallas Railway has gotten permission of the holders of its first mortgage bonds to increase its debt by one million, which, with tax savings and money from halving dividends, will give it the funds it needs for modernizing. The city also made one other concession: DR&T won't have to remove the tracks left after its conversion to buses.

Philadelphia Dividend Irks City

• THE WRATH OF CITY FATHERS has descended upon Philadelphia Transportation Co. PTC—of all things—has declared a dividend.

Unlike Dallas, which has voluntarily agreed to a dividend cut, PTC's board of directors voted one for 30 cents, over the protests of city representatives on the board.

Several months ago every thing looked rosy when both parties pledged their co-operation. Philadelphia would do all in its power to see that PTC got new rolling stock.

But now the city may renege. Declared Mayor Joseph S. Clark Jr., PTC should forego dividends until the system is completely modernized. He was answered by PTC President Charles Ebert. Said Ebert, in effect, if the company waited until modernization became a fact it might not have any investors.

Not only did PTC declare a dividend, but it made it known that it was going to keep up the practice. Only recently Ebert, in reporting the company's small first quarter earnings, said PTC was making month-to-month progress. This money, Ebert believes, belongs at least in part to PTC's shareholders who have gone so long with so little (Two years).

But the vinegar is not all out of the city. Threatened with the loss of city aid in getting new rolling stock, PTC must also face the fact that its lease on subways and elevateds runs out in 1957. Continued dividends may prove a block to renegotiation of these leases.

Philadelphia Transportation took a final rap at the city by stating in a release to the press that it couldn't understand the city's attitude since PTC carries six out of seven riders . . . delivers the same percentage to city coffers in taxes, something city lines carrying one out of seven passengers don't do.

National Group To Survey Transit

• A NEW GROUP HAS BEEN FORMED on a national scale to set up a standard operating procedure for transportation and for the planning of street and highway systems.

Financed by the Automotive Safety Foundation, the new group is made up of members of various associations with a stake in saving our cities. Among them: American Public Works Association, American Society of Planning Officials, International City Managers Assn., Municipal Finance Officers Assn. and the National Institute of Municipal Law Officers Assn. Also to be playing a big part is the Bureau of Better Roads, which has an interest in the findings of the new committee.

Headed by Glenn C. Richards, general superintendent of the Detroit DPW, the new group is off to a slow start—it is still in the formative stage. To be expected when it gets rolling: a report on transportation needs . . . a complete inventory of all transportation services, among them transit.

Metro Coach Buys Asbury Property

• EMPIRE BUILDER JESSIE HAUGH is on the move. Latest in his long list of acquisitions: 97-bus Asbury Rapid Transit, operating 140 miles in the Los Angeles area. Annual gross of ART is about $1.3 million.

Purchase of ART by Metro Coach Lines, which was bought by Haugh just a little over a year ago, was announced July 1. The price: estimated at $150,000. An application for State PUC approval has already been filed.

According to Haugh, the purchase will " . . . make possible a closer integration of the two separate operations." Duplicated service will be cut.

ART will continue to operate as a separate company. The only change will be a group of executives to be selected by Metro.

Canadian Bus Law Affects U.S.

• BUS LINES OPERATING over the Canadian border will have to bone up on provincial regulations under Canada's new Federal Motor Vehicle Transport Act, which calls for a $1,000 fine for failure to obey individual provincial regulations.

The new law gives to the individual provinces the right to regulate all transportation in their provinces as they now do intraprovincial transport. This included the regulations pertaining to tariffs, tolls and licensing.

Earlier this year Canada's highest court ruled that the federal government alone had the legal right to regulate interprovincial and, more important to U. S. operators, international transportation.

Now the government has given the job to the provinces—if they want it. A proclamation must be issued before any province can claim the right to control transportation.

The new law is not without a joker: provincial regulatory boards will control—but only by leave of federal authorities. By a simple Order in Council, the Canadian government can regain control. Unlikely though, unless for defense purposes.

Rochester Faces Service Slash

• A KNOCK-DOWN, DRAG-OUT FIGHT is developing in Rochester, N. Y., where the Rochester Transit Corp. has threatened to reduce service one third in retaliation against a city move to restrict the number of buses operating out of the company's East Main bus barns.

Rochester Transit concentrated its buses in this barn earlier this year as an economy move, but local residents started protesting against early morning noise. The city told the company to eliminate the trouble . . . sought a Supreme Court injunction when nothing was done to reduce the noise buses made when starting out.

Transit officials told the city high cost caused by traffic delays in downtown Rochester made the move necessary. They want the situation corrected, will then see if something can be done about the nuisance.

City officials are caught in the squeeze. On one side its Rochester Transit and on the other it's the local press, which has accused them of playing "peanut politics" instead of doing something constructive . . . on traffic and on the noise.

Riding Resumes at Harrisburg

• RESIDENTS OF HARRISBURG, PA., are riding again. After 90 days during which buses of the Harrisburg Railways Co. were tied up by 252 striking drivers, normal service has been resumed.

Drivers won a 12-cent-an-hour wage increase to be spread over 18 months, five cents now, five cents more in six months and a final two cents next July. The increase was part of an eight-point settlement proposal made by Federal Mediator G. H. Young and agreed to by both management and labor.

Upon making the settlement known, HRC President Harley Swift revealed that an immediate fare increase would be sought to pay for wage boosts. And the increase would have to be substantial, Swift said.

Part of the credit for ending the strike went to HRC's "Courtesy Buses" operated by supervisory personnel in the nine days preceding the settlement.

It has been estimated that the drivers lost an average of $975 each for the three months they had refused to work.

United Transit Drops Token Use

• UNITED (R.I.) TRANSIT CO. has dropped the use of tokens in its operations in a move to "safeguard its credit."

Straight cash fares became the order of the day on July 10, after the abandonment was approved by Public Utilities Adiministrator T. A. Kennelly. The move is expected to yield UTC $300,000 a year and produce an estimated rate of return of 1.96 per cent.

Kennelly, in deciding for discontinuance of tokens, said that "UTC has proved beyond a reasonable doubt that considerable additional revenue is required for the maintenance of the company credit standing."

UTC still faces the job of bringing in outstanding tokens. It figured that some 500,000 are in the hands of the riding public, but that most of these would have been worked off by the time of the changeover. One of the conditions of the abandoment was that tokens held by the public be redeemed. Tokens still held may be used as part payment, UTC decided, and will be redeemable until Sept. 30.

It has been estimated that the bulk of the extra income would come from single zone riders who will pay a straight 15-cent fare instead of the token rate of 12½ cents.

Selectee Agreement Is Extended

• MEMBERS of the National Bus Military Bureau will have to wait at least one more year before getting relief from the "equalization of fares" provision in their agreement with the Selective Service System.

Long a sore point with carriers, the equalization provision says operators shall charge the lower of two fares to a destination even if the selectees are carried over the more expensive route.

NBMB had asked for elimination of these provisions in negotiating a new agreement with the Selective Service System and the military agencies, but nothing could be done before the expiration of the agreement on June 30. As a result, the agreement was extended for another year with the provision still included.

In the past, operators had run into trouble in billing. Although state directors would agree verbally to use of the high fare routes, the general accounting office would apply the equalization principle and charge carriers for "over-payment."

To combat this in the coming year, it has been suggested that agreements with state directors be made in writing . . . with records of the agreement filed with NBMB for filing of an exception.

Seattle to Go Zone by October

• A ZONE-FARE OPERATION will be put into effect at Seattle by next October, the Seattle Transit Commission has announced, although details have yet to be approved.

The city probably will be divided into three zones, said Chairman Donald H. Mackenzie, with a ride within one zone to be at a minimum fare, perhaps less than the present 16-2/3 cent fare. Rides from one zone into another will be somewhere between the minimum figure and a three-zone maximum fare of about 25 cents.

Unless the zone fare is instituted, it has been estimated that the system will go $650,000 in the red this year.

Earlier, Mackenzie advised residents who suggested a subsidy that annual losses could well run in the millions if equipment replacement was made possible by a general bond issue.

Seattle Transit presently salts away $475,000 a year for depreciation, but this isn't enough to replace equipment at present prices.

Both the Transit Commission and the Municipal League have urged the city council to relieve the system of the two per cent gross receipts tax it now pays. The city is expected to answer this request as it has in the past . . . with a no.

Calendar of Events

A list of activities of interest to the bus industry

September

15-17 National Association of Motor Bus Operators
Drake Hotel, Chicago, Ill.

23-25 Automotive Parts Rebuilders Convention
Morrison Hotel
Chicago, Ill.

27-30 American Transit Assn.
William Penn Hotel
Pittsburgh, Pa.

November

8-10 Canadian Good Roads Association
Royal York Hotel
Toronto, Canada

December

8-10 Automotive Service Industries Show, Navy Pier
Chicago, Ill.

Winchell Named To Knudson Post

• JOHN H. WINCHELL, Colorado Public Utilities Commissioner since 1951 was nominated on June 15 by President Eisenhower for the job of Interstate Commerce Commissioner, replacing Commissioner James K. Knudson, who retired.

Winchell, both an engineer and a lawyer, is to serve out the remainder of the Knudson's unexpired term which runs to Dec. 31, 1960.

Last May Knudson also stepped down from his job as DTA administrator to enter private practice. At that time Commissioner Owen Clark was named as his successor to that post.

Meanwhile, as of July 1, the Commission abolished the Bureaus of Law, Inquiry, Traffic and Informal Cases as a step toward reorganization. The functions of these bureaus have been transferred to newly created offices and bureaus.

This latest move reduced the number of bureaus from 15 less than a year ago to a total of nine.

Industry Briefs

Invitations • Columbus Transit Co. became the first operation to show interest in a new cost-of-service franchise being studied by the Columbus City Council. Fifty-two letters of invitation have been sent to transit operators coast-to-coast, but Oscar R. Hott, CTC president, said his company was ready for negotiations since ". . . we favor a franchise of this kind."

New Book • A must for transit officials is THE CITY FIGHTS BACK, written under the auspices of the Urban Land Intstitute by Hal Burton. It tells of transit's key role in city growth and development . . . . appeared earlier in part in a national magazine.

Parking • Two Ohio cities may give parking bans a try. Columbus and Youngstown are studying such proposals in an effort to get traffic moving. In Ft. Wayne, Ind., a similar ban was lifted when merchants protested although traffic was speeded up.

Settlement • New York's Transit Authority has settled its differences with the union . . . has signed a two-year contract giving 37,000 TA workers wage increases ranging from six and a half to 11 cents retroactive to Jan. 1. The increases will cost TA about $9,000,000 a year. Other terms: provision for wage adjustment next March, appointment of impartial adviser to settle labor differences and joint action to end sick leave abuses.

Addition • Chicago's growing propane fleet will grow some more. The Chicago Transit Board has okayed the purchase of 100 new LPG vehicles, bringing to 1,051 the number of propane buses it operates. Flxible Twin will manufacture them at a $19,860 price.

Fair Weather • Boston Metropolitan Transit Authority has established a "fair weather only" bus service to nearby Revere Beach. Operation of the five-mile run (20-minute headways) will hinge on decision of MTA's inspection department . . . will shut down in inclement weather.

Green Light • More than 77 per cent of the stockholders of the Omnibus Corp.'s New York properties voted in favor of a sale to the New York management group. Only three per cent voted against. All that stands in the way now is governmental approval and the Omnibus Corp. will be out of the transit business.

Two Terminals Open

• TWO NEW BUS TERMINALS, a continent apart, were officially opened last month when Trailways carriers operating through Washington, D. C., invited the public to a gala sendoff and when Jessie L. Haugh conducted a ribbon cutting ceremony for his new $315,000 bus center at Van Nuys, California.

Spectators and hundreds of public officials were on hand for the Washington opening, among them Maryland Governor Theodore R. McKeldin.

The new bus center will be occupied by Virginia Trailways and Safeways Trailways.

The new California terminal will serve as a division point for eight Metropolitan Coach Lines.

Haugh pointed to the terminal as a step forward in the company's program for progress. Approximately $15,000,000 will be spent by Metro for new buses and for eight major terminal points.

Dixie Drivers End Strike

• STRIKING CONTINENTAL DIXIE drivers returned to their jobs last month, ending a 26-day tieup affecting Texas and adjacent states. They agreed to accept a company offer of a ¼-cent-a-mile increase.

At the same time, Continental Dixie dropped a $250,000 damage suit it had instituted against the union.

The new figure is essentially what the company had offered at the start of the strike. It represents an average increase of $20 a month.

A spokesman for the Brotherhood of Railroad Trainmen, the union to which the striking drivers belong, said that the union had gained concessions by retaining a demerit system for infractions and by achieving compulsory arbitration of grievance disputes.

While Dixie drivers are back, employees of Continental's Central and Western divisional are still holding out.

Industry Veterans Die

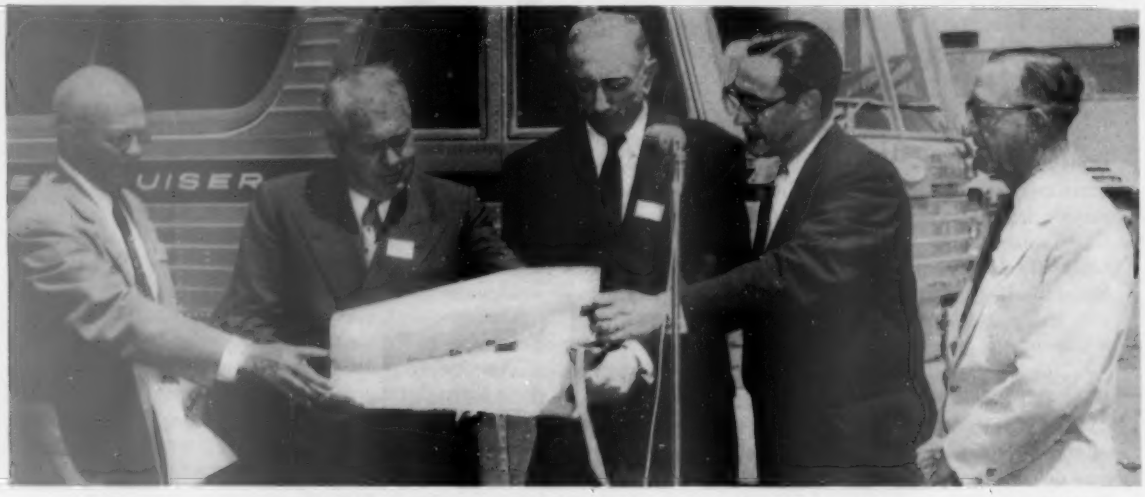
• TWO BUS INDUSTRY veterans, Wayne E. Taylor and M. S. Maloney, died recently.

Mr. Taylor, 67, president and owner of Indian Trails Bus Lines, Owosso, Mich., got his start in the transportation industry in 1912 when he drove a Model T Ford taxicab between Owosso and Flint, Mich. As roads got better, Mr. Taylor realized the great future in intercity operation.

Cora V. Taylor, who survives her husband and who was co-founder of the company, will take over the reins as president.

Mr. Maloney, secretary-treasurer of the Trancontinental Bus System, died at his home in Dallas, Tex.

Twenty-six years with Transcontinental and its predecessor, Bowen Motor Coach, he was well known for his work in modernizing the bus industry's insurance and accounting principles.



E. P. Crenshaw, GM Coach Sales Mgr. | Orville S. Caesar, Greyhound President | Roger M. Kyes, GM Vice President | P. J. Monaghan, GM Coach Gen. Mgr. | H. E. Listman, Retired GM Sales Mgr.

Greyhound and GM Top Brass . . .

. . . Introduce the New "Scenicruiser"

AT A FORMAL UNVEILING IN DETROIT, almost 20 years after it was first conceived, the Scenicruiser—joint venture of General Motors and Greyhound—bowed in.

The first of 500 to be delivered to Greyhound by GM rolled off the assembly line on July 14, with Orville Caesar, Greyhound president, accepting delivery from Philip J. Monaghan, general manager for G.M. Coach.

First models of the two-tiered beauty will be used mainly for display purposes, but one will be used immediately on Greyhound's New York to Miami, Fla., run. Later deliveries will travel between major cities.

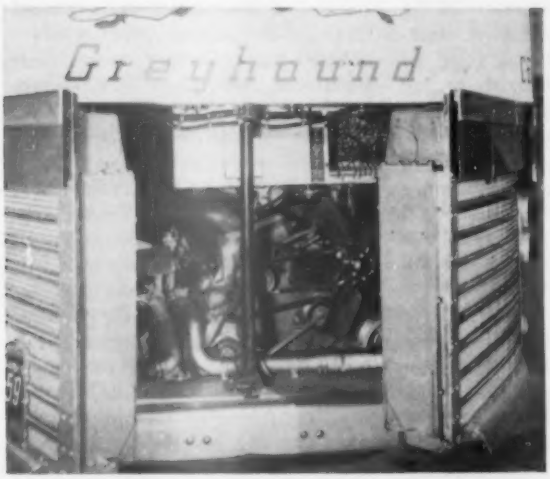
The initial order with GMC calls for delivery of 500 coaches at $49,000 each. An order for an additional 500 hinges on customer acceptance. But Greyhound still plans to continue buying regular coaches for shorter runs. Greyhound now operates 6,000 vehicles.

TEN PASSENGERS will sit on the lower level, while 33 occupy the upper deck. Lavatory is located next to steps to upper tier.

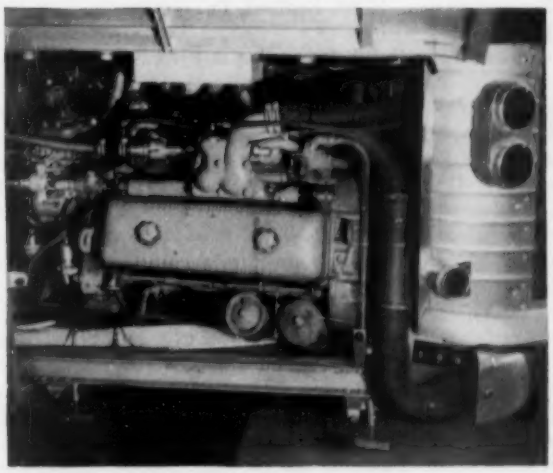
HIGH ABOVE TRAFFIC, passengers can view the road for great distances. But Scenicruiser is only a foot higher than single deckers.

UNOBSTRUCTED VISION and simple controls benefit drivers on long distance runs. The new buses will travel between major cities.

"LAZY SUSAN" baggage space is another innovation, making it possible to get luggage no matter how far back it was stored.



TWIN DIESEL power plants push the new cruiser. Two 150-hp engines are easily removable in a matter of minutes.



THIS FOUR-CYLINDER diesel and its twin take the place of one 225-hp engine. They work through a six-speed transmission.

TOTAL REGISTRATION at PBA annual meeting numbered 212. Mornings were devoted to business, afternoons to fun.

THE FAIR SEX was present to the number of seventy. Here are a few attending the Ladies Luncheon.

AT HEAD TABLE are Mrs. R. T. Grier, Mrs. J. K. Hoffmeister, Mrs. W. Feick, Miss Mary Lanich and Mrs. J. G. MacGrindle.

HARLEY SWIFT runs Legislative Workshop. On the platform with him are Jim Hager, PBA counsel, and President Bert Duncan.

Record 212 Attend Bedford PBA Meeting

• WITH TOTAL REGISTRATION of 212, the Pennsylvania Bus Association set a new record for attendance at its 33rd annual convention held at the Bedford Springs Hotel, Bedford, Pa., June 20-22.

Characteristic of the pattern of this organization, mornings were devoted to business, while afternoons and evenings were given over to recreation. Members started gathering at the resort on Sunday, June 20, to renew old acquaintances.

On Monday morning the meeting got officially under way with a legislative workshop panel presided over by Harley L. Swift. George Anderson, ATA executive vice president, addressed this session.

Companies participating in the "Driver of Distinction Awards" were recognized at a luncheon at which Mayor Frank Kopriver, Jr. of Duquesne gave an address. A reception for association members was given by manufacturers and suppliers in the evening and was followed by the annual banquet.

The Tuesday morning meeting heard E. L. Schmidt, secretary of the Pennsylvania Department of Highways, tell of the problems faced by his group. He cited Harrisburg and Pittsburgh as examples of what happens when bus transportation service is interrupted. Results, he pointed out, are little short of chaotic with autos flooding the streets, other transportation service badly strained, business suffering and thousands of people inconvenienced.

Annual election of officers was held. Ralph Grier, president of the Southern Penna. Bus Co. was elected president to succeed J. M. Duncan of the Duquesne Motor Coach Co. J. K. Hoffmeister, Penn Transit, McKeesport, was named first vice president and Clinton Smith, Schuylkill Valley Lines, Norristown, second VP.

J. Edgar Reed, Ashland and Shamokin Auto Bus Co., Mt. Carmel, and F. J. Edwards, Edwards Motor Transit Co., Williamsport, were elected treasurer and secretary, respectively.

Elected as directors were Robert Buchanan, Ridge Lines, McKeesport; H. P. Corcoran, Short Line, West Chester; Wilson Feick, Brentwood Motor Coach; Carl Fischer, Pittsburgh Railways; A. E. Fullerton, Penn Greyhound; W. J. MacReynolds, Phila. Transportation; John C. Tuten, Harrisburg Railways; F. D. Spofford, Blue Ridge Lines, Hagerstown, Md.; and Joseph C. Panzera, Panzera Bus Service, Uniontown, Pa.

The entertainment program for the coming year will be handled by the Suppliers Reception Committee composed of W. H. Hobbs, Fitzjohn Coach Co., Maxwell Rogal, Markel Service and F. A. Arnold, Thermoid Company.

ATA and NAMBO Make Ready For September Conventions

• MEMBERS OF THE National Association of Motor Bus Operators and of the American Transit Association will open new campaigns in their individual wars against bus industry problems next month when they hold their annual meetings.

ATA members, 1,200 in all are expected, will travel to Pittsburgh, Pa., for a program touching on just about every phase of transit.

NAMBO, which like ATA met on the West Coast last year, will this year gather in Chicago for a three-day meeting. Headquarters will be the Drake Hotel.

Full programs have been mapped out for both conventions, although at press time these plans were of necessity in the tentative stages.

Here is the way the meetings shape up:

NAMBO will meet September 15, 16 and 17 at the Drake Hotel. Robert B. Murray, under secretary of commerce for transportation, will be the guest speaker at the morning session. Other speakers will be heard throughout the morning and at the first day's luncheon.

On the afternoon of the first day, reports will be heard from various committees after an opening address by a still-to-be-announced guest speaker. Featured also in the afternoon will be the presentation of the BUS TRANSPORTATION Maintenance Efficiency Awards.

Highlight of the Thursday meeting will be two panel sessions, one on safety and the other on traffic. Suggestions for the latter have been sought from the National Bus Traffic Association.

Election of officers will be on the afternoon of the 16th, with the annual banquet to be held that night. On September 17 the day will be given over to the annual Vendors' Party.

ATA will meet at the William Penn Hotel in Pittsburgh, September 27-30 and will get things under way with a general meeting on the morning of the 27th.

The presentation of BUS TRANSPORTATION ME Awards will take place at luncheon that day.

The afternoon will be given over to separate sessions of the accounting, claims, mechanical, plant and engineering, public relations and operating divisions. The last two will meet jointly.

Similarly, the second day will start with a general meeting which will be followed by a manufacturers division luncheon. Afternoon divisional meetings will be held by claims, electrical, public relations, purchases and stores and small operators (maintenance) divisions.

Highlight of the third day will be a public information luncheon to be sponsored by the Pittsburgh Chamber of Commerce. All divisions will meet that day, electrical, mechanical, public relations, purchases and stores and small operators (operations) meeting in the morning and the others gathering in the afternoon.

The annual dinner will be held on Wednesday night, the third day of the meeting.

John Powell Bob Reakes Bill Post

Michigan Bus Men . . .

John McCarthy Bob Reakes Lt. Gov. C. L. Reid

. . . Strip for Action

•SHIRTSLEEVES WERE THE ORDER OF THE DAY as operators, wives, guests and manufacturers gathered at Traverse City, Mich., for the 34th annual meeting of the Michigan Motor Bus Association.

The heat of the day did little to melt bus men who sandwiched a full day of business between two days of social activities.

Business got under way on Friday, June 18, with J. W. Powell of Great Lakes Greyhound telling of GLG's success with "Supervisory Training—Case Interviews."

William W. Post, North Star Lines, talked on "Safety in our Industry", which was highlighted by a group discussion on speed limits and the best way of maintaining them—governors or tachometers.

Guest speakers at Friday's luncheon were Lt. Gov. Clarence Reid and John McCarthy, PSC chairman. McCarthy told members of a new field opened by a bridge spanning the Straits of Mackinac.

The legislative outlook, including a bill permitting wider buses for some uses scheduled for passage in August, was discussed by Powell after lunch.

However, the feature of the afternoon session was a panel discussion led by R. F. Mears, Iner-city Coach Line Co. Discussed were new business, excursion fares, mail and express business and competition from car pools and other subjects of interest. Michigan Bus Association President Robert Reakes presided.

ABOUT PEOPLE . . .

PARTICK B. McGINNIS, president of the New York, New Haven and Hartford Railroad Company has been elected president and director of the Connecticut Company. He replaces W. P. Snow, who has resigned.

ALLEN WAGNER has joined the American Transit Association staff as director of public information. He succeeds John B. Lewis, who had been handling special public information assignments the past few years.

W. E. ROTENBERRY has been named vice-president and general manager of the Pioneer Bus Company, Inc. He formerly was assistant to the superintendent of transportation of Houston Transit Co.

HERCHEL M. RICHEY, factory manager of the Bearing and Rock Bit divisions of Timken Roller Bearing Company, has been named general factory manager. He has been associated with the firm since 1916.

HENRY A. TOBEY has been promoted to factory manager of the Canton and Gambrinus bearing factories of the Timken Roller Bearing Company. He formerly was general superintendent of Canton Bearing division.

WILBUR L. YOUNG, assistant chief inspector of the Timken Roller Bearing Company, has been named general superintendent of the Canton Bearing division. With the firm since 1937, he has held various positions.

JOHN B. DUVALL, JR., has been named director of planning and public relations for the Baltimore Transit Company. Prior to his recent appointment, he was superintendent of planning and public relations.

HARRY E. AIREY, assistant superintendent of planning for the Baltimore Transit Company, has been appointed superintendent of planning. He has been affiliated with the transit company since 1929.

CLYDE T. HEADLEY has been appointed superintendent of public relations for the Baltimore Transit Company. With the transit company since 1946, he formerly was superintendent of safety.

T. V. HAUSE has been appointed technical service representative for the Oakite Products, Inc. Formerly with a paint concern, he will now cover territory in Hartford, Connecticut.

CHARLES F. WILLIAMS, JR., formerly plant manager for the Regal Ice Cream Company, has been appointed technical service representative of the Oakite Products, Inc., covering Sioux City, Iowa.

JAMES F. DRIESCH has been appointed technical service representative for the Oakite Products, Inc. Formerly with F & E Checkwriters, he will now cover territory in the Washington, D. C., area.

M. F. JONES, formerly superintendent of transportation of Atlanta Transit Company, has been appointed director of transportation personnel of the Atlanta Transit System. He has been with the firm 44 years.

A. FRANK ROBINSON has been appointed superintendent of transportation of the Atlanta Transit Company. Formerly assistant superintendent of transportation, he has been with the company for 31 years.

ROBERT L. KAISER has been named marketing development manager of Magnus Chemical Co., Inc. He is now executive vice president and general manager of the Dif Corporation and the Larkin Soap Company.

M. J. SEVERINO has been promoted to district manager of Mack Trucks, Inc., with offices in Albany, N. Y. With the firm since 1920, he formerly was office manager of the bus division in the Middle West.

RICHARD H. FROST assistant to the president of the National Pneumatic Company, Inc., has been elected director and executive vice president. He has been associated with the company since 1947.

ROLAND S. WITHERS, director of the General Motors customer research staff in Detroit, has been appointed to the newly created post of general merchandising manager of AC Spark Plug division of GM.

Robert H. Kane has been named director of public relations for Connecticut Railway and Lighting Company.

He formerly was with the General Electric Supply Company as advertising and sales promotion manager.

E. R. Schmidt, vice president in charge of manufacturing of The Budd Company has been elected to the board of directors.

A. S. Mohs, regional manager for Northern Greyhound Lines (Madison) has been appointed manager of operations for the company's headquarters in Minneapolis.

Succeeding him is **F. X. Beumer,** regional manager at Minneapolis since 1950.

R. A. Carlson has been appointed vice-president and manager of engineering for the Rockford Clutch Division of Borg-Warner Corporation.

Other appointments: **R. E. Williams, sales manager** and **F. C. Gager,** who will succeed Williams as assistant sales manager.

Warren G. Reitz has been re-elected as president and general manager of Johnstown Traction Company.

Walter F. Brown, formerly north-central division manager of the United State Rubber Company has been promoted to assistant sales manager of the tires division for the company.

Thomas E. Morris has been appointed traffic engineer of the St. Louis Public Service Company.

John T. Davenport has been appointed administrative assistant for the company.

Art Youwer has joined the transportation division of Minneapolis-Honeywell Regulator Company as service engineer in the Chicago office. He formerly was with the Pullam Standard.

W. H. Shields has been appointed assistant operating regional manager for the Pacific Greyhound Lines in Sacramento, Calif.

Berton E. Rogers has been appointed general factory manager for Vickers, Inc. He previously was with

Continued on page 111

BUS AND TROLLEY BUS DELIVERIES

Motor Bus Deliveries	Number of Buses	Manufacturers	Model and Type	Seats
Atchison, Topeka & Santa Fe Railway System (Ill.)	5	Flxible	218FA7-54	33
Atchison, Topeka & Santa Fe Railway System (Ill.)	5	Flxible	218FA7-54	37
Atlantic Greyhound Corp. (W. Va.)	20	GMC	PD-4104	41
Baram Transportation Co. (N. J.)	2	GMC	TDH-4512	45
Blue Ridge Transportation Co. (Md.)	3	GMC	PD-4104	41
Boston, Worcester & N. Y. Street Railway Co. (Mass.)	4	GMC	TDH-4512	45
Capital Marmon-Herrington Coaches, Inc. (D.C.)*	1	Marmon-Herrington	8M2DA	32
Checkerway Charter Coach Co. Inc. (Ill.)	1	GMC	PD-4104	41
Chicago Transit Authority (Ill.)	39	Flxible	FL-2P-40	52
Columbus Transportation Co. (Ga.)	5	Southern	F-35M	36
Cosmopolitan Tourist Co. Inc. (N. Y.)	1	GMC	PD-4104	41
Croswell Bus Line Inc. (Ohio)	1	GMC	TDM-4515	45
Crown Coach Co. (Mo.)	2	GMC	PD-4104	41
Denver Tramways Corp. (Colo.)	50	GMC	TDH-5105	51
Flint Trolley Coach Co. Inc. (Mich.)	8	GMC	TDH-5105	51
Fordham Transit Co. Inc. (N. Y.)	5	GMC	TDH-4512	45
Grand Teton Lodge & Transp. Co. (Wyo.)	1	Flxible	218B1-54	29
Gray Lines, Inc. (D. C.)	2	GMC	PD-4104	41
Green Bus Lines Inc. (N. Y.)	15	GMC	TDH-4512	45
Hi-Way 56 Transit Lines, Inc. (Minn.)	1	Flxible	218B1-54	29
Hudson Bus Transportation Co. (N. J.)	3	GMC	TDM-4515	45
Indian Trails Inc. (Mich.)	4	GMC	PD-4104	41
Intertown Suburban Bus Lines (Mich.)	3	GMC	TDH-4512	45
Iowa City-Cedar Rapids Bus Line (Iowa)	2	GMC	PD-4104	41
Joseph J. LeFonto (N. J.)	1	GMC	TDH-4512	45
Lockport Bus Lines Inc. (N. Y.)	1	Flxible	218B1-54	33
Gerald B. Miller Co. (Calif.)*	1	Marmon-Herrington	8MCB	37
Missouri, Kansas & Oklahoma Lines (Okla.)	2	GMC	PD-4104	41
Missouri, Pacific Transp. Co. (Mo.)	10	GMC	PD-4104	41
Modern Coach Corp. (Ga.)	3	GMC	PD-4104	41
Monumental Motor Tours Inc. (Md.)	5	GMC	PD-4104	41
Mt. Hood Stages Inc. (Ore.)	3	GMC	PD-4104	41
New England Transp. Co. (Conn.)	5	GMC	PD-4104	41
New England Transp. Co. (Conn.)	5	GMC	TDM-4515	45
North Olmsted, City of (Ohio)	2	GMC	TDH-5105	51
Ohio Bus Lines Co. (Ohio)	10	GMC	TDH-4512	45
Oriole Motor Coach Lines, Inc. (Pa.)	2	GMC	TDH-4512	45
Orlando Transit Co. (Fla.)	5	Southern	S-41H	41
Patsy Palangio (N. J.)	1	GMC	TDH-4512	45
Pennsylvania Greyhound Lines (Ohio)	5	GMC	PD-4104	41
Pinehill Kingston Bus Corp. (N. Y.)	1	GMC	PD-4104	41
Queen City Coach Co. (N. C.)	1	GMC	PD-4104	41
Jack Rabbit Lines Inc. (S. D.)	1	Flxible	218B1-54	29
Rex Bus Co. (N. J.)	1	GMC	TDH-4512	45
Rockland Transit Corp. (N. J.)	5	GMC	TDM-4515	45
St. Louis Cape Bus Line (Mo.)	2	Flxible	218B1-54	29
San Antonio Transit Co. (Tex.)	7	Southern	S-45HF	45
Schuylkill Valley Lines (Pa.)	2	GMC	TDH-4515	45
Seashore Transp. Co. (N. C.)	1	GMC	PD-4104	41
Short Way Lines Inc. (Ohio)	4	GMC	PD-4104	41
Silver Lane Bus Co. Inc. (Conn.)*	1	Marmon-Herrington	8M2BC	35
Smoky Mountain Stages Inc. (N. C.)	1	GMC	PD-4104	41
South Carolina Electric & Gas Co. (S. C.)	16	GMC	TDH-3714	37
Southeastern Stages Inc. (Ga.)	4	GMC	PD-4104	41
Suburban Transit System, Inc. (Ill.)	2	GMC	TDH-4512	45
Sun Valley Bus Lines Inc. (Ariz.)	2	GMC	PD-4104	41
Union Pacific Railroad Co. (Nebr.)	2	Flxible	218FA1-54	29
Virginia Transit Co. (Va.)	18	GMC	TDH-4512	45
Wood River Alton Bus Line Inc. (Ill.)	2	GMC	TDH-4512	45
Foreign Deliveries				
General Motor Overseas Operation (N. Y.)	1	GMC	TDH-3714	37

Total deliveries reported in this issue.....316

*Deliveries received too late for June issue.

NOTE: This list is based on monthly reports from manufacturers. Not all manufacturers report regularly, consequently this list is not to be considered complete.

The Fare Box

Here is a quick look at the latest fare increases requested and granted as we went to press.

Increases Asked . . .

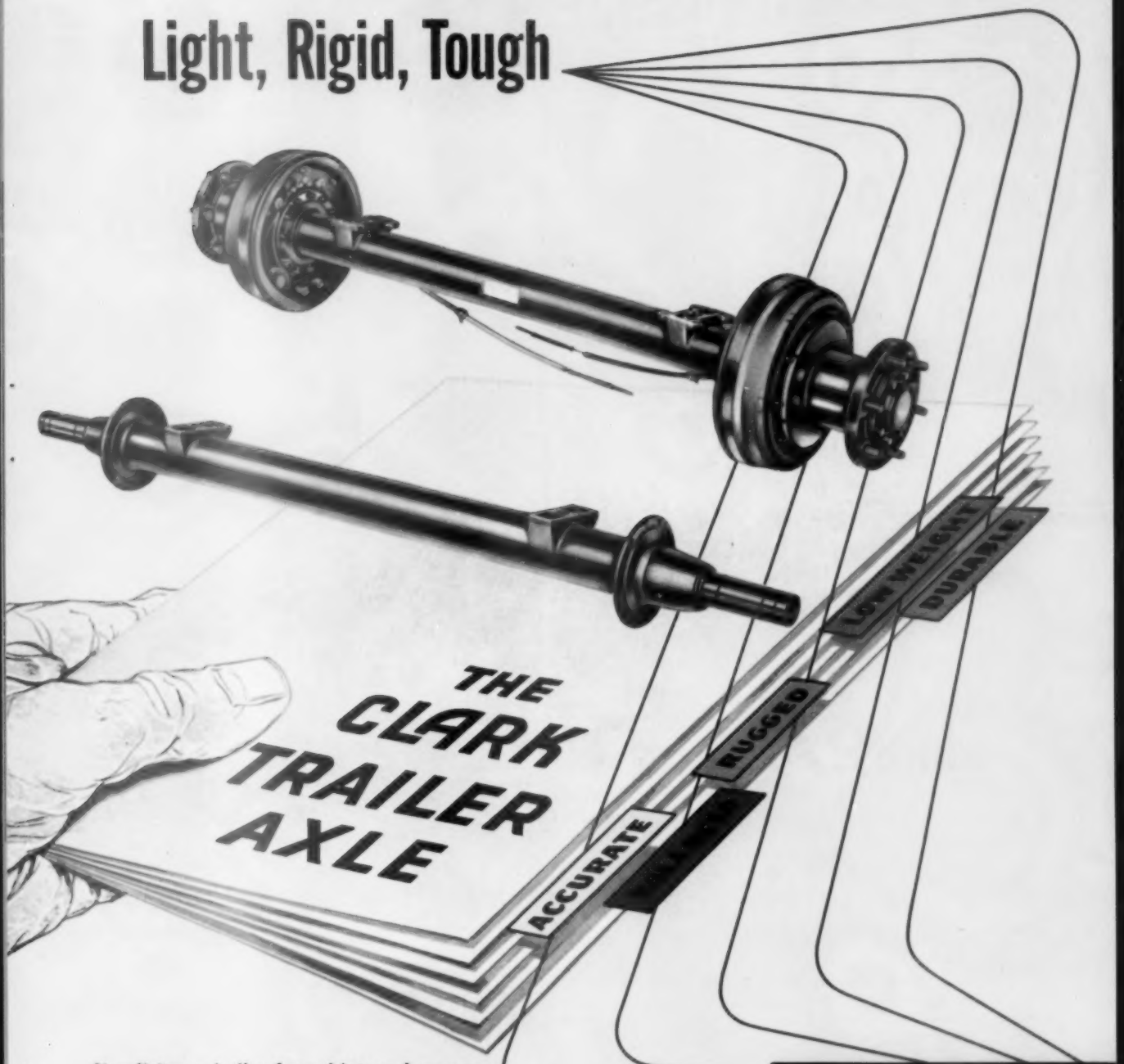
Rochester Bus Co., N. Y. • Straight ten-cent fare; elimination of free transfers.

North Platte City Bus Lines, Neb. • Adult cash fare up from 10 cents to 15 cents; tokens at four for 50 cents.

Appleton and Intercity Motor Coach Lines, Wis. • From 13 to 15 cents for adult urban fares; elimination of tokens. Same boost asked for first zone of interurban fares; increase in student fares to ten cents.

Continued on page 111

Light, Rigid, Tough



Simplicity: spindles forged integral on a high carbon steel tube — spring seats and brake mountings welded in place — and the complete unit heat-treated. Result: an axle of light weight, rigidity, extraordinary toughness and one more convincer that it's good business to do business with CLARK.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY, BUCHANAN, Battle Creek, Jackson, Benton Harbor, Michigan

Lakey Foundry saves 112 man-hours per shift in core handling with three 2000-lb. Clarks

Handling finished cores, from baking ovens either to core storage or direct to the molding line used to require 23 men using hand dollies; and stacking was done manually. Now, says Jim Wilson, Methods Engineer, three operators on Clark 2000-lb. trucks with six helpers, do a far better job with a reduction of 112 man-hours per 8-hour shift. "That's nice money!" is Jim Wilson's understatement.

Foundries are a particularly "happy hunting ground" for cost-minded executives armed with Clark fork trucks: on the alert for faster, safer, cheaper ways to handle sand, scrap, cores, molds, castings—all the many handling jobs that make up a foundry's production cycle.

How about some good hunting in your own plant?

There's an expert guide available—the Clark dealer: thoroughly competent to analyze your materials handling needs and to devise a plan to satisfy them. He's listed in your directory's Yellow Pages.

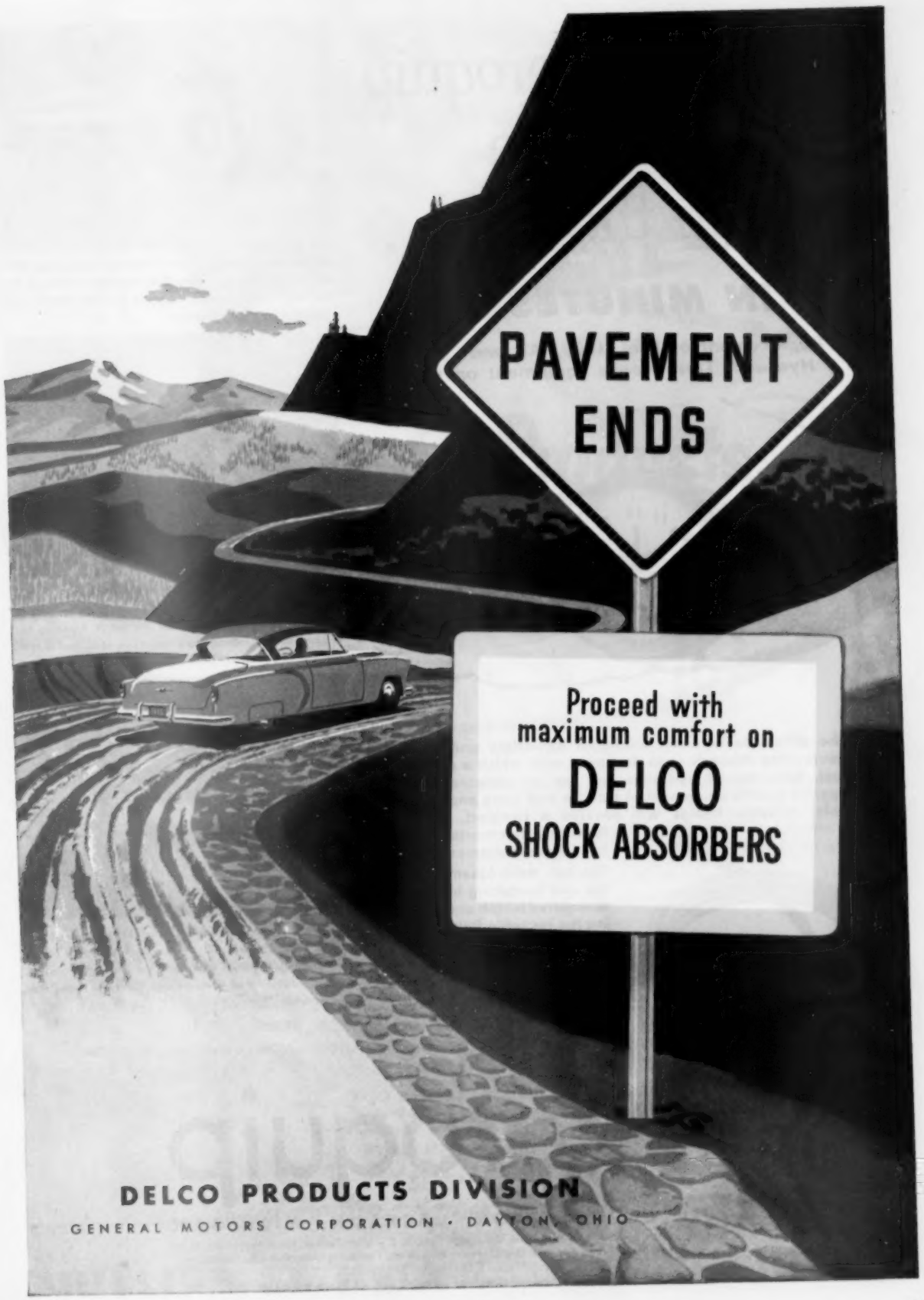
HOW LAKEY USES THREE CLARK TRUCKS

Production:	10,000 cores per day from 4 core lines and 4 ovens; grey iron castings chiefly for engine blocks and housings for industrial, agricultural and earth-moving machinery.
Sizes & Wts.:	10'-30" high, cores 12 to 100 lbs. each.
Handling Equipment:	3 Clark 2000-lb. trucks, 36" x 48" plywood and metal pallets, hydraulic load stabilizers with 1" sponge-rubber facing, to hold cores firmly and compensate for varying heights.
Unit Loads:	Range from 800 lbs. to 1600 lbs.
Storage:	Palletized units tiered to 15 ft. height; neat rows conserve storage space, simplify removal of cores, promote good-housekeeping.

PRODUCTS OF CLARK: TRANSMISSIONS • DRIVING AND STEERING AXLES • AXLE HOUSINGS • TRACTOR DRIVES • LIFT TRUCKS • TOWING TRACTORS • ROSS CARRIERS • POWRWORKER HAND TRUCKS • EXCAVATOR CRANES • TRACTOR SHOVELS • ELECTRIC STEEL CASTINGS • GEARS AND FORGINGS

CLARK EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek, Michigan


PAVEMENT
ENDS
Proceed with
maximum comfort on
DELCO
SHOCK ABSORBERS
DELCO PRODUCTS DIVISION
GENERAL MOTORS CORPORATION • DAYTON, OHIO

Assemble Aeroquip Hose Lines Right in the Field...

IN MINUTES!

Quick Replacement of Fuel, Lube, Air and Hydraulic Lines Keeps Equipment on the Job!

The difference between minimum downtime and wasted hours often depends upon the speed with which a damaged fuel, lube, air, or hydraulic line can be replaced. If you operate mobile equipment, Aeroquip bulk hose and detachable, reusable fittings will provide a compact, portable inventory that meets all your hose line replacement needs.

You can make assemblies on the spot by cutting bulk hose to required length and attaching the reusable fittings. This "Aeroquip Idea" gets equipment back on the job *fast*. For information, see your Aeroquip distributor or write us.

F. J. Sibr & Sons of Chicago, contract haulers of gasoline and fuel oil, operate a fleet of 28 trucks that average 500 miles a day. Aeroquip hose lines are used exclusively for fuel and brake line replacements on both diesel and gasoline operated equipment.

Chief Mechanic Joseph Hruska makes an Aeroquip hose assembly using bulk materials that are kept on hand at all times. The Company reports that the use of Aeroquip has eliminated line breakage and they have *never* had a road call due to an Aeroquip failure.

Mr. Hruska, who is responsible for keeping the trucks rolling, says: "We're using Aeroquip line for all of our replacements. It installs easily and the line is flexible . . . takes an awful lot of pressure and holds up better than copper tubing."

REG. TRADE MARK

Aeroquip

AEROQUIP CORPORATION, JACKSON, MICHIGAN

SALES OFFICES: Burbank, Calif. • Dayton, Ohio • Hagerstown, Md. • High Point, N. C. • Miami Springs, Fla. • Minneapolis, Minn. Portland, Ore. • Van Wert, Ohio • Wichita, Kan • IN CANADA: Prenco Progress and Engineering Corporation Ltd., Toronto
IN ENGLAND: Super Oil Seals & Gaskets, Ltd., Birmingham

AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

"Phillips 66 Products do a job for us"

So says Henry G. Korsmo, Manager of Mechanical and Transportation Departments of Transcon Lines in Oklahoma City, Oklahoma.

Operating 80 Diesel tractors and 173 trailers, Transcon hauls general freight on routes across the Middle West to California. Here are typical examples of the tight schedules on which Transcon operates: Oklahoma City to Los Angeles in 45 hours; Chicago to Oklahoma City in 25½ hours. And Transcon schedules are rigidly maintained.

Transcon has put full confidence in Phillips *66* Products since 1946. Today, they are using Phillips *66* Heavy Duty Motor Oils, Greases and Diesel Fuel. "Phillips *66* Products do a job for us. Take a look at our engines at overhaul. They are remarkably clean. We get little sludge or wear."

Phillips is proud of the part its products play in keeping Transcon "on schedule". Why not learn what Phillips *66* Products can do for you? They can help you, no matter what kind of fleet you operate.

Set up your own test. A Phillips 66 Lubrication Engineer will be glad to help you plan it without obligation. Write to: Sales Department, Phillips Petroleum Company, Bartlesville, Oklahoma.

Oil for the Engines of Commerce

PHILLIPS 66 HEAVY DUTY MOTOR OIL

Fm

Sintered

COPPER-LEAD ENGINE BEARINGS ...MAXIMUM MILEAGE FOR FLEETS

CP Federal-Mogul *CP* sintered copper-leads provide the fleet operator with truly *precision* insert bearings for maximum mileage. They are overplated with lead-tin to assist break-in. A final coating of pure tin provides additional corrosion resisting qualities. They should not be resized or align-bored.

CA Federal-Mogul *CA* sintered copperlead engine bearings meet the fleet owner's needs for flexibility in his engine rebuilding. They have lower copper content, and are not overplated. They can be resized or align bored to meet the size requirements of reground crankshafts of any hardness.

CA or CP . . . fleet owners are *miles* ahead with Federal-Mogul sintered copper-lead engine bearings. *Ask your Federal-Mogul jobber!*

Sintering is a heating or "roasting" process. Federal-Mogul uses it to bond pure copper-lead powder to the steel bearing back, in the strip process. After forming and machining, the bearings have great strength and ductility. They are famous for their durability in heavy-duty engine operation.

FEDERAL-MOGUL SERVICE

Division Federal-Mogul Corporation

DETROIT 13, MICHIGAN

America's Smartest Bus Named After America's Smartest Bird

The NEW Fitzjohn Intercity Coach

The ROAD-RUNNER

A "Bird" of a BUS that's Going Places

America's smartest new bus, The ROAD-RUNNER, in 37-passenger size, has made a big hit and soon will be seen everywhere! *Now it is available with a 33-passenger seating capacity*, yet it has all the same outstanding features found in the larger model—fluted, polished, anodized aluminum paneling; tinted safety glass windows and windshield; FITZJOHN "*Magic Carpet*" air-suspension springs; roomy, comfortable seats; power ventilation; larger fuel capacity; plenty of luggage room — all of which add up to passenger-appeal, lower maintenance costs and a money-making operation!

Equipped with the FITZJOHN "MAGIC CARPET" AIR-SUSPENSION SPRINGS

The new and revolutionary Fitzjohn "MAGIC CARPET" Air Suspension Springs give passengers a thrilling, joltless, "floating-on-air" ride—while reducing vibration and shock on the bus, wear on the tires, *and reducing maintenance costs!*

Diesel or Gas

Your choice of a Cummins diesel or Waukesha gasoline engine.

The ROAD-RUNNER has been *experienced-engineered* with YOU in mind—to provide you with all the sales-building features you want to help you compete with all other modern modes (or other lines) of transportation! *Send for copies of specifications — or ask for a demonstration and see for yourself!*

● Fitzjohn also produces the popular CITYLINER — gasoline- or diesel-powered. It's the low-cost transit bus you can trust for economical operation.

Builders of Fine Motor Coaches for More Than Thirty Years!

FITZJOHN COACH COMPANY
MUSKEGON, MICHIGAN

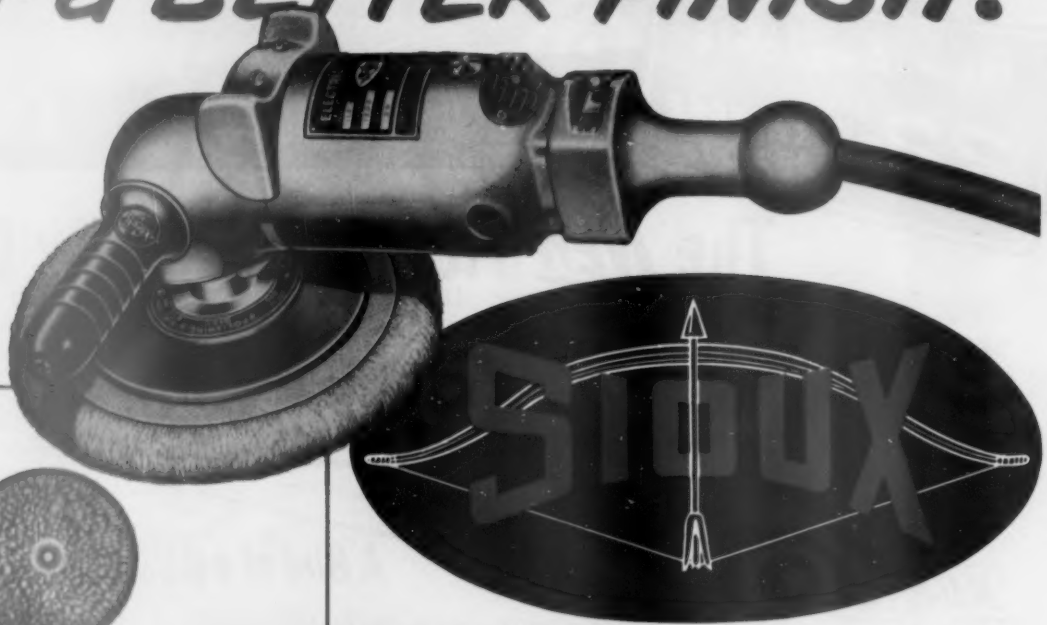
IN MEXICO
Distribuidora de Omnibus Fitzjohn, S. A.
Ave. Morelos No. 83
Mexico City, Mexico

IN CUBA
Distribuidora de Omnibus Fitzjohn de Cuba, S. A.
E No. 310, esq. Calle 15
Vedado, Havana, Cuba

CANADIAN COMPANY—FITZJOHN COACH OF CANADA, LTD., Brantford, Ont.

"If it's made by Fitzjohn, it's made to make you money!"

Good Start for a BETTER FINISH!



POLISHING PADS & BONNETS

SIOUX AUTO POLISH

FOR MACHINE OR HAND POLISHING

SIOUX-VENIR

FOR MACHINE AND HAND VENEERING

The Sioux Model 1200 Electric Polisher is ideal for shops and service stations where the need is for a heavy duty polisher. Its balance and touch make it a favorite with operators. Its speed and power assure the finest work with minimum labor cost.

Model 1202 (not shown) is a well-balanced, light, easy to handle polisher for intermittent service in smaller shops and garages; as an auxiliary polisher; and for waxing operations.

Dependability? Behind that trade mark there's a reputation built over 40 years of manufacturing experience, that says you're going to be satisfied with the quality of *this* electric tool.

Write for the

NEW SIOUX CATALOG

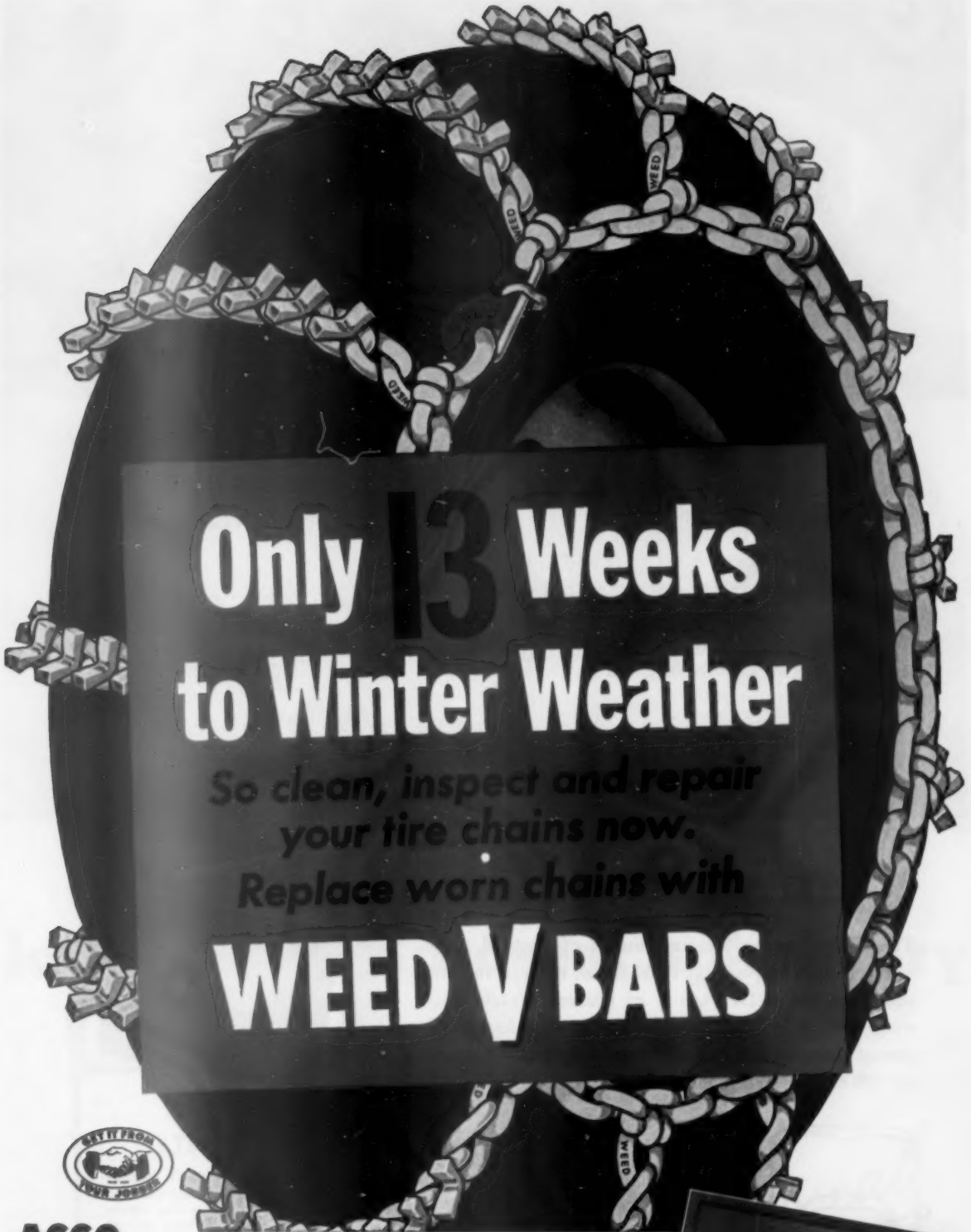
USE SIOUX ALL THE WAY THROUGH

Electric Drills, Sanders, Polishers, Bench Grinders, Portable Grinders, Valve Seat and Face Grinders, Electric Hand Saws, Flexible Shafts, Abrasive Discs.

Sold only through authorized* SIOUX *distributors

ALBERTSON & CO., INC.

SIOUX CITY, IOWA, U.S.A



ACCO

In Business for Your Safety

AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

York, Pa., Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, Ore., San Francisco, Bridgeport, Conn.

wix PUTS YOU A STEP AHEAD

Engineered Filtration

CUTS COSTS MANY WAYS FOR YOU

WIX-PAX DIRECT SHIPMENTS AT SPECIAL, LOW FLEET PRICES GIVE YOUR FILTER COSTS THE AXE

WIX-PAX spells big savings for you right from the start, brings you genuine WIX HEVI-DUTY Oil Filter Cartridges at special, low prices. *Engineered Filtration* saves money for you all along the line . . . gives you longer service from your oil, Filter Cartridges and engines, cuts maintenance and repair, keeps your payload units rolling!

WIX-PAX OFFERS NO SECOND LINE CARTRIDGES—ONLY GENUINE TOP QUALITY WIX!

This money saving Service consists of prepaid, fast motor freight shipments of 100 lbs. or more, direct to you from the WIX Factory or nearest Warehouse, with savings in distributor inventory and handling passed along to you in lower cost. Ask for the details on this money-saving Service today.

FREE

TO FLEETS

This useful WIX Fleet Manual keeps your fleet maintenance on the ball. Shows the whole story on every payload unit at a glance—performance, repairs and preventive maintenance. Absolutely FREE with your first WIX-PAX order.

WIX GIVES US ECONOMY TWO WAYS—ENGINE PROTECTION WITH TOP PERFORMANCE AND REALISTIC PRICES!

WIX CORPORATION • GASTONIA, N. C., U. S. A.

B.F.Goodrich

Photo courtesy Pittsburgh Railways Co.

Her shoes will wear out long before Koroseal upholstery

THE Koroseal upholstery in that school bus will still be new looking when the young lady is in college. Years of constant abuse from feet, jam, snow, dirt and anything else youngsters can think of won't dim the beauty of Koroseal. Koroseal is waterproof, easily washable, comes clean almost instantly; and when it's clean, it looks like new. These are the reasons why Koroseal is first choice for 9 out of 10 school buses.

Stands nearly everything—Koroseal upholstery resists grease, oils, most stains, acids and common chemicals. It even resists flame—always goes out when flame is removed. Heavier grades pass all flame-resistance specifications of Federal boards, Army, Navy and Air Force. Flame resistance is *not an extra* treatment; there is no extra cost; it is permanent, will not leach out. In lighter grades, the Koroseal coating itself is flame-resisting.

People like to ride on it—Koroseal upholstery won't get tacky and stick to clothing in hot weather. People like it because it always seems clean and new looking.

Save two ways—Koroseal is easy to work with, saves upholsterer's time. It cuts, trims and fits with little waste. This is a double saving when combined with Koroseal's long life. Everyone benefits—seat manufacturer, bus manufacturer, bus operator—when Koroseal upholstery is specified. *Koroseal is made by The B. F. Goodrich Co., Marietta, Ohio.*

Trade Mark—Reg. U. S. Pat. Off.

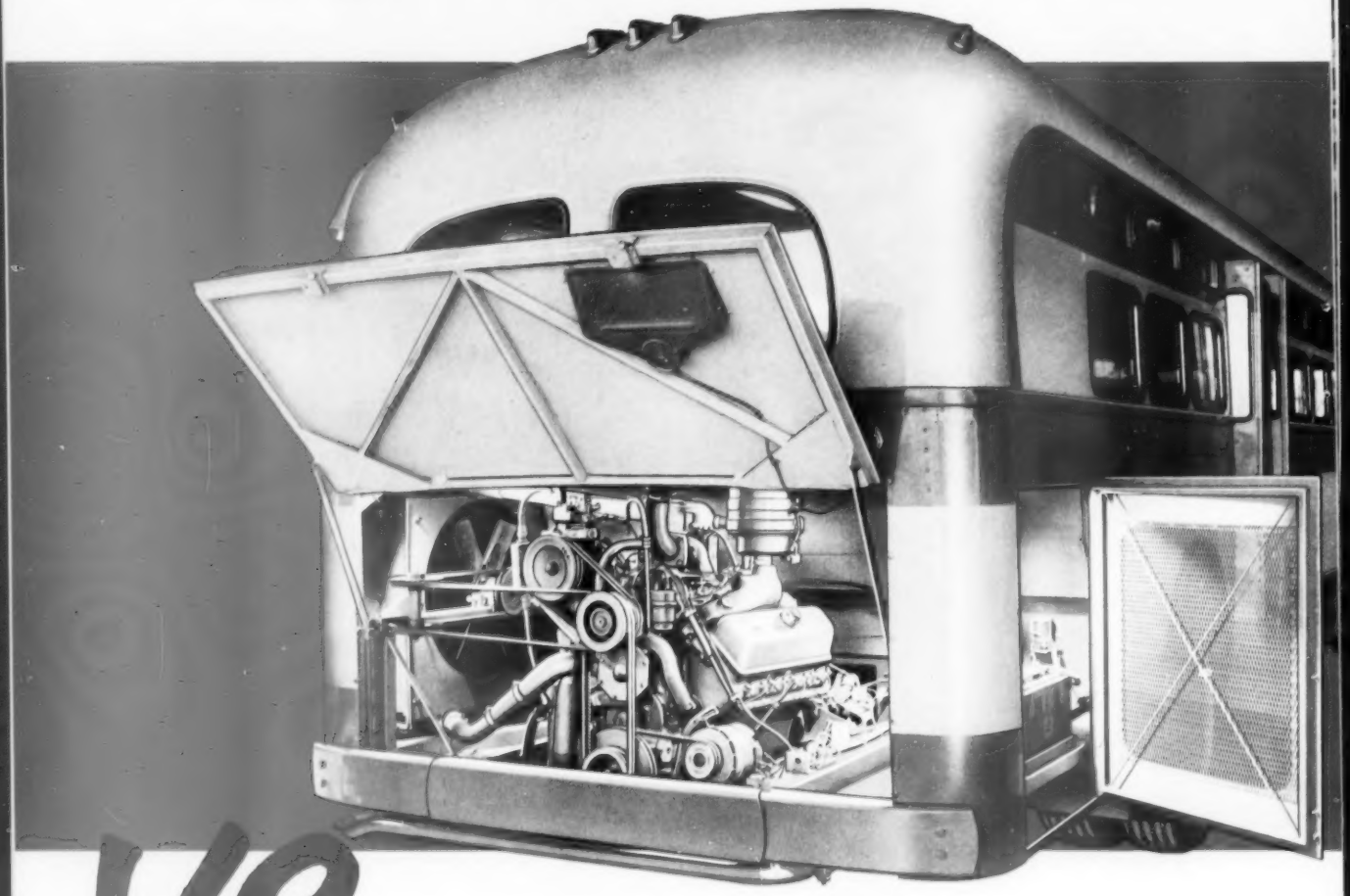
Koroseal

BUS UPHOLSTERY BY

B.F. Goodrich

INDUSTRIAL PRODUCTS DIVISION

First V8 in the Large-Bus Field

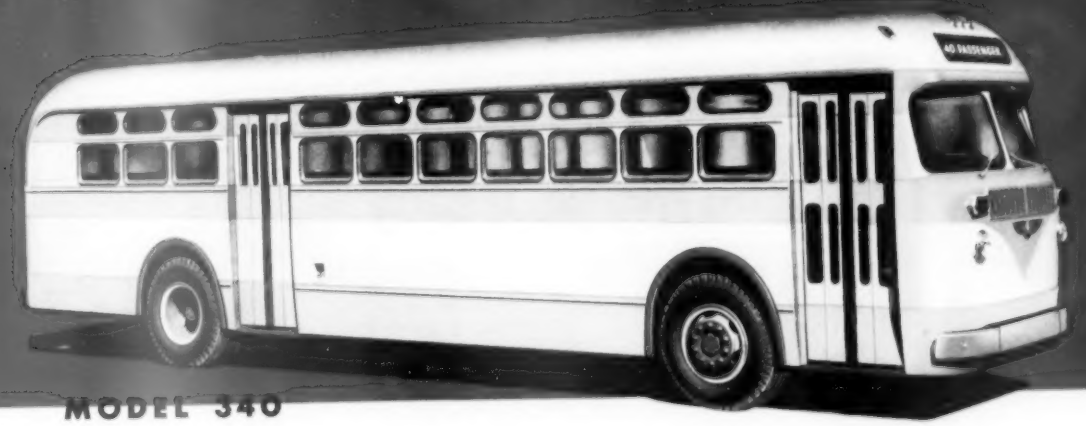


V8 the most advanced power

The new Model 340 Transit Bus is powered by a heavy-duty, high-compression V8 valve-in-head Le Roi engine having a displacement of 540 cubic inches. Being the most compact engine in its horsepower range, it is mounted longitudinally with direct drive to the axle. As shown in the above photograph, the saving of space permits exceptional accessibility for servicing. It has a very low weight to horsepower ratio . . . only 6 lb per hp. Other advantages of the V8 engine are faster acceleration, smoother operation, economical performance and lower maintenance costs. Ask for new Bulletin 340.

ONLY THE NEW **40 Passenger Transit Bus**

GIVES YOU THE MANY ADVANTAGES OF A **V8 Engine**



MODEL 340

for the most advanced bus

Transit CCM Buses, Inc.

Subsidiary of

CHECKER CAB MANUFACTURING CORP.

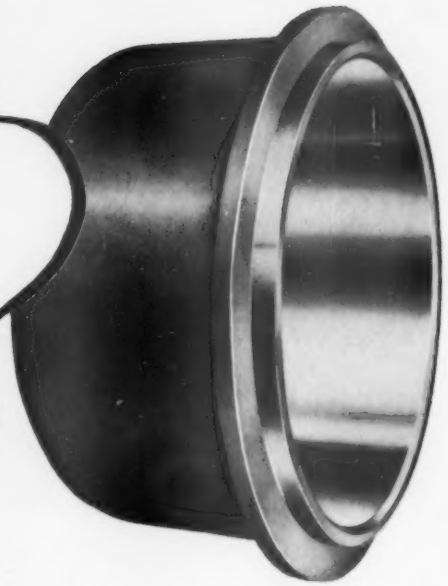
Factory:
KALAMAZOO, MICH.

•

Sales Offices:
SCHAEFER RD. at ELMIRA
DETROIT 27, MICH.

UP TO 25% BETTER BRAKING WITH REYCO DRUMS!

No Brake Can Be Better Than the Brake Drum that Backs it up



REYCO® *Engineered* BRAKE DRUMS HAVE EXTRA STRENGTH BUILT IN

This reinforced strength where needed is to assure uniform expansion and complete rigidity under pressure, so that full braking area contact is maintained. You thus avoid up to 25% braking loss incurred when brake drums have not been so perfectly engineered!

With Reyco Brake Drums you also get the advantage of basically-better Reyco Metal, which is specially formulated to meet the intense demands of today's busses, trucks and trailers.

Reyco Engineering plus basically-better Reyco Metal are the just-right combination in accident prevention and minimizing downtime required for relining, adjusting or replacing brake drums!

Reyco Engineering provides plain, ribbed and flanged brake drums, and from the one designed for your operation, you'll get *the best brake drum service possible to obtain!*

D-354

COPYRIGHT 1954. REYNOLDS MFG. CO.

SEE YOUR NEARBY REYCO DEALER!

REYNOLDS MANUFACTURING CO.

SPRINGFIELD, MISSOURI

"Sludge problems completely licked"

following change to

SHELL ROTELLA OIL

. . . all gasoline and diesel units of the New England Transportation Company, Providence, R. I., are serviced with Shell Rotella Oil

SEVERAL YEARS AGO, this prominent carrier selected Shell Rotella Oil for use on their diesel tractors. Result: oxidation and sludge problems completely cleared, even though oil was changed only once in 5,000 miles. This outstanding performance prompted its use for the entire fleet, in both diesel and gasoline driven engines for trucks, tractors and buses.

Ever since its introduction Shell Rotella Oil has gained wider acceptance with fleet owners. Its ability to reduce engine parts wear . . . to keep engines clean and operating efficiently for longer periods . . . has meant less "down-time" and big savings in labor and engine parts.

SHELL

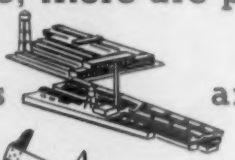
Send for the latest technical data on Shell Rotella Oil for fleet use.

SHELL OIL COMPANY

50 WEST 50TH STREET
NEW YORK 20, NEW YORK

100 BUSH STREET
SAN FRANCISCO 6, CALIFORNIA

Integrity is the sum of many things . . .

Behind the Adlake TRADE MARK name, there are physical facts, like ten acres of modern buildings  an unequalled staff of engineers and draftsmen and completely modern engineering equipment.

But even more important behind the Adlake TRADE MARK name are 97 years of experience and the unbreakable rule of the company to stand behind every product that carries it. Every Adlake product is tested and guaranteed to meet specifications.

Manufacturers of railway, bus, streetcar, and trolley windows, **curtains,** **hardware,** **and other specialty equipment for the transportation Industry.**

Adlake TRADE MARK 97th year of serving the transportation and building industries

THE Adams & Westlake COMPANY

Established 1857 • ELKHART, INDIANA • New York • Chicago

"Over the road or in our pickup and delivery service Champion Spark Plugs give us the best performance"

—says **HAROLD J. SECOY**, *President*
Federal Express, Inc., Indianapolis, Indiana

FEDERAL EXPRESS, INC
577 WEST RAY STREET
INDIANAPOLIS 25, INDIANA

HAROLD J. SECOY
PRESIDENT

June 16, 1954

Champion Spark Plug Company
Toledo 1, Ohio
Gentlemen:

We congratulate the Champion Spark Plug Company for the years of dependable service we have enjoyed through the use of their product.

As Federal Express has grown during the past 25 years, our usage of Champion Spark Plugs has increased because our experience has proved that Champion plugs do the job better.

To any fleet a low cost per mile figure is important and we depend upon our Safety Lane Equipment to keep that cost at a minimum. This goal has been achieved through the medium of a strict preventative maintenance program, which includes tire maintenance and cleanliness of the fleet. We also find that engine efficiency is the prime requisite of low-cost operation. Champion Spark Plugs have helped do that job for us.

In our over-the-road units as well as our pickup and delivery trucks, we find that Champion Spark Plugs give us the best all-around performance.

It has been proved that Champion dependability is there year after year, and you may be assured that we will continue to use Champions.

Very truly yours,

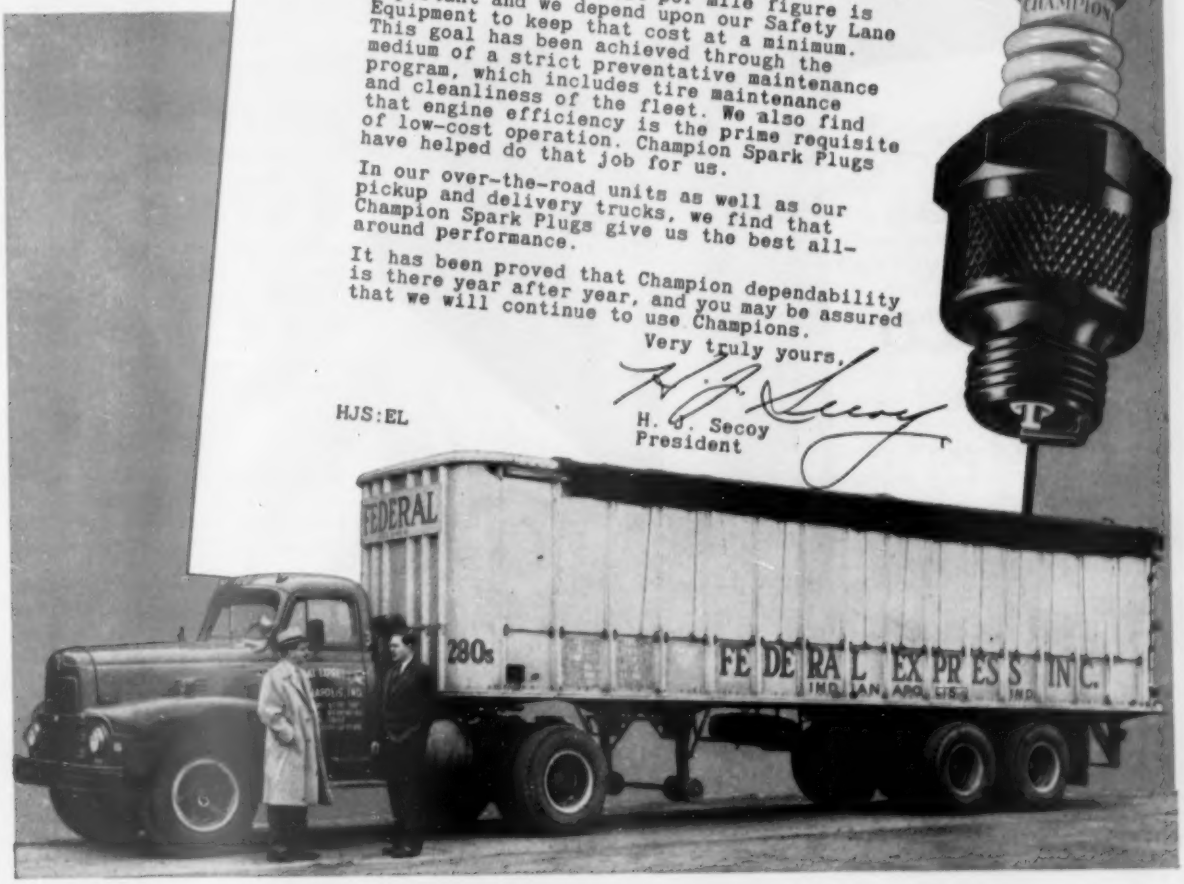
H. J. Secoy
President

HJS:EL

TIMELY TIPS

It pays to wipe spark plug insulators regularly—with a clean rag.

Removing the dirt, oil and grime that causes shorting and arcing—especially in damp weather—results in easier starting and smoother engine performance.



Battery trouble is one of the big expenses of our fleet! How about you?

Not ours—we've always depended on **DELCO** for lowest cost per mile of operation. It's a tougher Battery!

No space wasted!

EVERY INCH AN ACTIVE STOREHOUSE OF POWER!

Battery maintenance doesn't have to be a big expense item in your fleet. Not if you use Delco batteries — because every inside inch that ought to be working, *is working.* Every inch is an active storehouse of power designed to give you greater service at a lower cost per mile of operation. This is what has made Delco the nation's No. 1 battery in original equipment and replacement use!

FULL-SIZE PLATES—No fillers or spacers are used in Delcos, as in some batteries that look as big. Delco is 100% an active storehouse of real power.

POWER-FULL CASE—Specially designed for each Delco model; newly engineered for 50% higher impact strength, withstands road shocks.

GENEROUS LIQUID RESERVE—Plates amply covered for 4000-6000 miles of normal driving, yet there's none of the false security of excessive reserves.

EXCLUSIVE "EXPANDER" FORMULA — This feature of the negative plates means greater cranking power, reduces harmful granulation. Patented! It's only in Delco!

Always replace with a

DELCO BATTERY

Original equipment on more new cars and trucks than any other brand

A GENERAL MOTORS PRODUCT — A UNITED MOTORS LINE

means Control here

Providing good service at rush hours is one of the toughest problems transit companies are up against. All sorts of obstacles intervene. Heavier loads, extra trips, traffic tie-ups . . . all of these disrupt schedules, annoy passengers and impair operational efficiency.

Many transit operators are reducing rush-hour difficulties and are saving valuable time in passenger interchange by using National Pneumatic equipment. The new NP Heavy Duty Rack and Gear Engine, especially designed for buses that are pressurized when air conditioned, has more than ample power to open doors quickly and smoothly. It is simply designed, takes less space and requires lubrication only *once every six months.* As a result, maintenance costs and downtime are low.

National Pneumatic Co., Inc., has designed, developed and manufactured door operating and safety control equipment for nearly 50 years. If you have a problem in this field, make use of our experience and facilities. No obligation, of course.

BE SURE . . . ALWAYS SPECIFY NP DOOR CONTROL AND SAFETY EQUIPMENT

NATIONAL PNEUMATIC CO., INC. AND **HOLTZER-CABOT** DIVISIONS

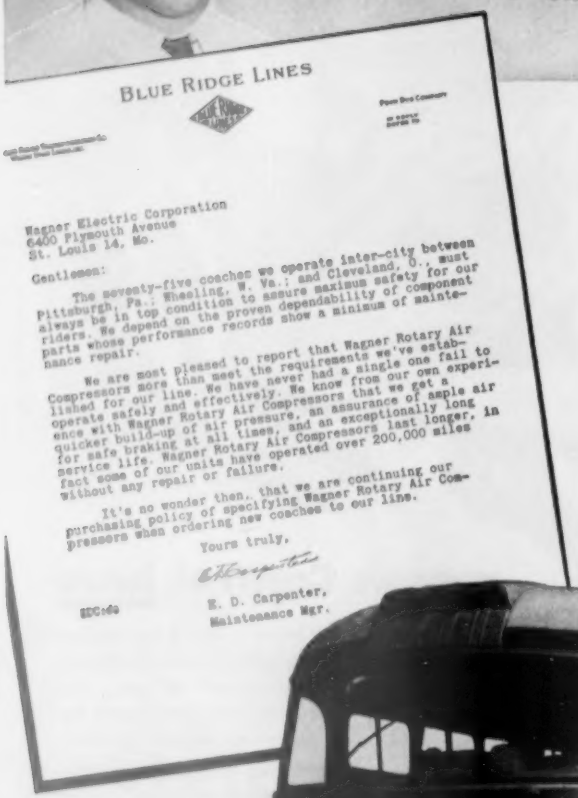
125 Amory St., Boston 19, Mass.

Sales Service Representatives in Principal Cities throughout the World

Designers and manufacturers of mechanical, pneumatic, hydraulic, electric and electronic equipment and systems

"Wagner Rotary Air Compressors last longer... over 200,000 miles without any repair or failure."

says: **E. D. CARPENTER**, *Maintenance Mgr.*
BLUE RIDGE TRANSPORTATION CO., WASHINGTON, PA.



BLUE RIDGE LINES

Wagner Electric Corporation
6400 Plymouth Avenue
St. Louis 14, Mo.

Gentlemen:

The seventy-five coaches we operate inter-city between Pittsburgh, Pa.; Wheeling, W. Va.; and Cleveland, O., must always be in top condition to assure maximum safety for our riders. We depend on the proven dependability of component parts whose performance records show a minimum of maintenance repair.

We are most pleased to report that Wagner Rotary Air Compressors more than meet the requirements we've established for our line. We have never had a single one fail to operate safely and effectively. We know from our own experience with Wagner Rotary Air Compressors that we get a quicker build-up of air pressure, an assurance of ample air for safe braking at all times, and an exceptionally long service life. Wagner Rotary Air Compressors last longer, in fact some of our units have operated over 200,000 miles without any repair or failure.

It's no wonder then, that we are continuing our purchasing policy of specifying Wagner Rotary Air Compressors when ordering new coaches to our line.

Yours truly,

E. D. Carpenter,
Maintenance Mgr.

EDC:dg

What Mr. Carpenter of Blue Ridge Transportation Company says is absolutely true. Wagner Rotary Air Compressors do last longer and provide more dependable air pressure. They build up pressure quickly, eliminate heat in discharge lines, stop carbon formation in air lines and valves, and substantially reduce friction loss and fire hazard. All these factors are important to bus operators interested in passenger comfort, safety and convenience.

Wagner Rotary Air Compressors are used by many leading bus companies. These fleet operators know that the ever-increasing demand for safe braking power to meet any stopping emergency requires them to install air brake systems that are safe—sure—and economical to operate.

It will be to your company's advantage—in maintenance dollars saved and increased passenger safety—to specify and install Wagner Air Brake Systems. Full information is contained in Wagner Bulletin KU-201A... send for your free copy, today.

K54-3

WAGNER AIR BRAKE USERS ARE OUR BIGGEST BOOSTERS

Wagner Electric Corporation
6461 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.
(Branches in Principal Cities in U. S. and in Canada)

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID... NoRel... CoMaX BRAKE LINING... AIR BRAKES... TACHOGRAPHS... ELECTRIC MOTORS... TRANSFORMERS... INDUSTRIAL BRAKES

Maintenance Records got you going Round in Circles?

Socony-Vacuum's new P. M. System cuts paper work— helps keep your units humming!

Simple . . . accurate . . . easy-to-follow — that's Socony-Vacuum's new Preventive Maintenance System! It cuts paper work to the bone . . . practically eliminates breakdowns due to improper lubrication maintenance . . . helps reduce maintenance costs.

You work with only three things — work sheet, record folder, control blackboard. We supply record folders and work sheets . . . show you how to use them, help set up the entire system.

We also analyze your fleet conditions, help you set up lubrication schedules and inspection periods, provide skilled lubrication engineers when necessary, report on benefits achieved.

* * *

Call your Socony-Vacuum representative for complete details.

CORRECT LUBRICATION FOR FLEET OPERATORS

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL CO., INC.
MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

JOHNSON TYPE "J" and TOKENS

...Give You FARE Collection Instead of Money Collection

The Johnson Type "J" is still today's smallest and lightest-weight automatic electric fare box. It's lowest in cost, too. Dimensions: 15½" high, 7" wide, 5" deep. Weight 19 pounds, 2 ounces.

The combination of the Johnson Type "J" Automatic Electric Fare Box and Johnson metal fare tokens offers the simple solution to today's complex fare structures. With tokens, you have the practical answer to those hard-to-collect multi-coin fares plus an unlimited range of fare adjustments. With the Johnson Type "J," you have efficient collection with complete revenue protection. Every fare is automatically registered and classified. The token or coin does all the work. To speed up schedules with safety and safeguard your revenues, get full details on this dependable Johnson system, proven in service since 1923.

Johnson

Johnson Fare Box Company
Subsidiary of Bowser, Inc.

4619 North Ravenswood Ave., Chicago 40, Illinois
New York Office: 420 Lexington Ave., New York 17, N. Y.
Boston Office: 35 Leon Street, Boston, Mass.

SINCE 1909

JOHNSON IS ALSO PROTECTING BILLIONS IN U.S. BOMBER INVESTMENTS WITH PRECISION ARMAMENT EQUIPMENT

Rollers in each bearing are matched to almost microscopic limits

(Another reason why TIMKEN® bearings are first choice with bus manufacturers)

WE'RE not satisfied just to grind and hone Timken® bearing rollers to exact tolerances. This machine sorts them into even more precise sub-sizes, so we can match rollers in each bearing to almost microscopic limits. Thus each roller carries the same load. This assures quieter operation, longer bearing life. It's one of many extra steps that insure the quality of Timken bearings.

Only Timken bearings give you ALL these advantages: 1) advanced design, 2) precision manufacture, 3) rigidly controlled quality, 4) special analysis Timken steels. That's why Timken bearings are the number-one choice of bus manufacturers.

When you install a replacement bearing, make sure it has the trademark "Timken". Send for free booklet, "Timken Tapered Roller Bearings—Their Care and Maintenance". Write Dept. TB-8, The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

SINCE THEY'RE BEST WHEN THE BUS IS NEW, THEY'RE BEST FOR REPLACEMENT, TOO!

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭

BEARING TAKES RADIAL ▯ AND THRUST ←▯→ LOADS OR ANY COMBINATION ✳

Marmon-Herrington Wins AGAIN!

PHILADELPHIA

places order for another 43 Marmon-Herrington Trolley Coaches

● Officials of Philadelphia's Department of Public Property and the Philadelphia Transportation Company are enthusiastic about trolley coaches in general and Marmon-Herringtons in particular.

Mr. Howard S. Hipwell, Chief of the Engineering Branch of the City's Department of Public Property, writes, "Of first importance in the rapidly expanding northeast residential section of Philadelphia is the need for fast, safe transportation by quiet, smooth-riding transit vehicles. To this end, streetcars on 4-mile Route 59 were replaced in 1950 with 28 Marmon-Herrington Trolley Coaches. This new service produced such improvement in the riding trend that streetcars are now being replaced on still another line with Marmon-Herrington Trolley Coaches."

Mr. A. G. Lyons, General Superintendent of Rolling Stock and Shops of the Philadelphia Transportation Company, has this to say, "The trolley coach combines the maneuverability and smooth rubber-tired ride of the motor bus with the long-life and low-cost maintenance of the streetcar. For the third time in recent years, streetcars are being replaced with trolley coaches on important routes serving Northeast Philadelphia, the fastest-growing section of the city. **43 Marmon-Herrington Trolley Coaches have been ordered for the route now being converted."**

Find out how Marmon-Herrington Trolley Coaches —the most modern and efficient of all transit vehicles— can improve service and cut costs for you. Write for complete information.

Transit Equipment Division

MARMON-HERRINGTON COMPANY, INC. • INDIANAPOLIS 7, IND.

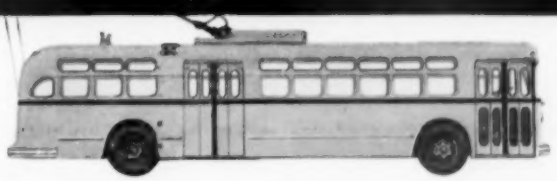
Above: Skyline of Central Philadelphia as seen from head of Benjamin Franklin Parkway.

Left: Marmon-Herrington Trolley Coaches provide rapid service to one of Philadelphia's fastest growing residential areas.

Bottom Left: Marmon-Herrington Trolley Coach taking on passengers at Arrott Street Terminal in busy Northeast Philadelphia.

MARMON-HERRINGTON

Trolley Coaches



FIRST IN ORIGINAL EQUIPMENT SERVICE
FIRST FOR REPLACEMENT, TOO!

It's Always Best to RECONDITION WITH THE "ENGINEER APPROVED" PISTON
ZOLLNER HEAVY DUTY
Used and Recommended by over 70% of all Truck and Bus Manufacturers

Experience counts — and the experience records of fleet owners, everywhere, prove "top engine performance and lower operating cost with Zollner Pistons." *Here's why!* Zollner Pistons are specifically tailored to individual engine requirements. Engine manufacturers work hand-in-hand with Zollner engineers in the development of each piston specification. For replacement as well as original equipment, Zollner is the "engineer approved" piston, expertly designed and precision-made. You are always safe and sure when you specify Zollner for every piston job.

ZOLLNER
HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS • FORT WAYNE, INDIANA

We've said it a dozen ways...

. . . and we'll keep on saying that Tropic-Aire—Carrier motor coach air conditioning is *right* for your fleet.

Dependable Tropic-Aire—Carrier mobile air conditioning provides traveling comfort over twenty billion passenger miles a year—and the record grows, year after year.

Low-cost, lightweight Tropic-Aire—Carrier units are installed on more motor coaches than any other mobile air conditioner *in the world.*

And now Tropic-Aire—Carrier offers the first practicable, economical *diesel-powered* motor coach air conditioner ever presented to American fleet owners.

All good reasons why *your* fleet, too, should be Tropic-Aire —Carrier equipped.

Carrier
TROPIC-AIRE Inc.

5201 W. 65th STREET, CHICAGO 38, ILL.

TROPIC-AIRE, INC., IS A SUBSIDIARY OF McGRAW ELECTRIC CO., CHICAGO

an ACCO product

Tru-Stop Emergency Brakes

Safe Stops!

• The Dart Truck Company, Kansas City, Mo., specializes in big jobs like the 61-cubic-yard, 50-ton coal hauler pictured above. The best emergency brakes are a "must" to bring these wheeled giants to a smooth, safe stop, and hold them safely on steep grades. Therefore, Dart, like other leading manufacturers of trucks, buses and trailers of all sizes, uses TRU-STOPS to get these braking advantages for its customers:

Real emergency braking

Tru-Stops are real emergency brakes —not just "parking brakes." They serve as auxiliary brakes on long down grades and can bring the vehicle to a smooth, quick stop if service brakes suddenly fail.

Good safety practice demands immediate deadlining of a vehicle after service brake failure. TRU-STOPS can do this and more. They can handle the vehicle with safety so it can be removed from the highway.

Smooth, positive stops

TRU-STOPS prevent accidents by insuring quick, positive stops in emergency situations.

Positive parking brakes

TRU-STOPS hold safely on steep grades —prevent "parking brake" accidents.

Lower service requirements

TRU-STOPS are mounted directly on the drive shaft. Their simplicity of design and accessibility reduce maintenance requirements. Relining or adjustment is a simple job for any mechanic with ordinary tools. It is not necessary to drop drive shaft.

Specify TRU-STOPS for factory installation on your next vehicle.

LONGER LINING LIFE

The terrific heat generated in braking is a big factor in cutting lining life. TRU-STOPS' ventilated disc design quickly dissipates this heat. Most of the disc is exposed to the air even during braking. In addition, a cooling jet of air circulates through the disc, prolongs lining life.

For full details on TRU-STOP, write for booklet

ACCO

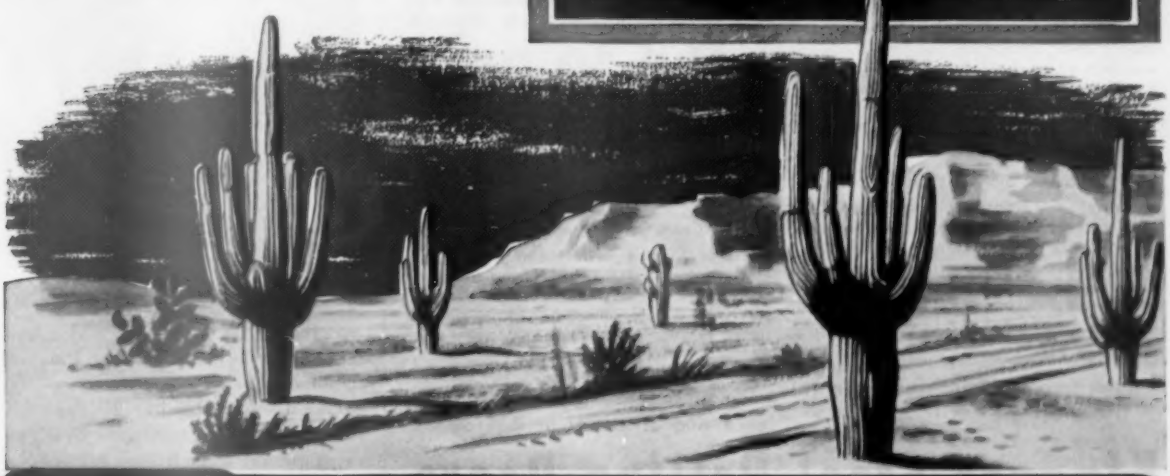
Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

601 Stephenson Bldg., Detroit 2
2216 So. Garfield Ave., Los Angeles 22 • Bridgeport 2, Conn.

TRU-STOP Emergency BRAKES

Proved in World-wide Service

The 'Olympic' has already proved its suitability for every continent and climate. Integral construction gives the 'Olympic' immense strength, stability and safety and even if an accident occurs, damage is localised and repairs are easily carried out. The 125 b.h.p. underfloor engine is light on fuel and, like other Leyland running units in the 'Olympic', is accessible and easy to maintain. The 'Olympic' is made with left-hand or right-hand drive, to seat 40 or 44 passengers and provides ample standing accommodation.



Leyland M-C-W

LEYLAND MOTORS LIMITED
Head Office and Works:
LEYLAND · LANCASHIRE · ENGLAND
London and Export Office:
HANOVER HOUSE · HANOVER SQUARE
LONDON · W.1

METROPOLITAN-CAMMELL-WEYMANN LIMITED
VICKERS HOUSE, BROADWAY, S.W.1
Telephone: ABBey 2611 (3 lines)
Grams & Cables: METWEY, LONDON

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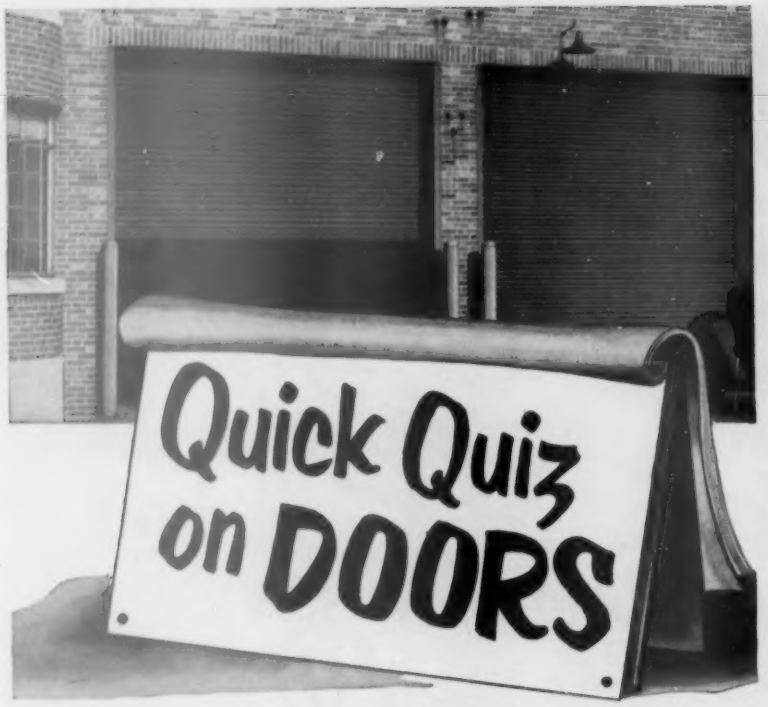


QUESTION: How can we be *sure* of door efficiency?

Answer: The upward-coiling curtain of interlocking steel slats, originated by Kinnear, *is the key to many basic door advantages.*

QUESTION: How much floor space is taken up by the doors?

Answer: You can make full use of all floor and wall space around Kinnear Rolling Doors, inside and outside the opening, at all times. *By coiling straight upward, they operate* entirely within the space they occupy when closed.

QUESTION: Can we run crane or hoist rails and other overhead equipment close to the doorway?

Answer: Yes. Kinnear Rolling Doors use no ceiling space, except for the compact hood area into which the curtain coils. This hood can often be recessed in the wall, or mounted outside the building, so that ceiling heights can be held to minimum, cutting building costs.

QUESTION: Are the doors easy to operate?

Answer: Strong torsion-spring counterbalancing makes even manual-lift Kinnear Doors extremely easy to operate. They are also ideal for motor operation—no lengthy operating cables, no projecting tracks, no bulky mechanism. Push-button controls can be placed at any number of points.

QUESTION: What about protection?

Answer: Kinnear Rolling Doors guard every opening with a curtain of steel anchored in steel jambs from floor to ceiling—a fire-resistant barrier against wind, weather, theft, or vandalism.

QUESTION: Can we count on low maintenance costs?

Answer: Many Kinnear Rolling Doors have been in continuous daily use upwards of 20, 30 and 40 years without repair or maintenance expense, *as proved by reports from many users.*

QUESTION: What about corrosion resistance?

Answer: A heavy coating of pure zinc (1.25 ounces per square foot, ASTM Standards) applied by the hot process, gives Kinnear Rolling Doors a highly durable galvanized finish. In addition Kinnear's special Paint Bond, a phosphate immersion treatment, provides for thorough coverage and adherence of paint.

QUESTION: What if the doors are damaged?

Answer: The steel slat construction of Kinnear Rolling Doors absorbs a lot of punishment. Slats accidentally damaged can be individually replaced any time. Detail drawings of every door are kept in Kinnear's own fireproof vaults.

QUESTION: What sizes are available?

Answer: Kinnear Rolling Doors are engineered to individual needs, in any practical size (doors several hundred square feet in area are not unusual). They are easily installed in new or old buildings.

In short, you get all the correct answers to long-lasting, low-cost door convenience and efficiency in the famous

Kinnear Steel Rolling Doors

Write today for full information

The KINNEAR Manufacturing Co.
FACTORIES:
3050-70 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

SAVING WAYS in DOORWAYS

KINNEAR ROLLING DOORS

WHAT'S NEW

Continued from page 44

Speedyelectric steam jet cleaner . . .

. . . is said to be lower, lighter and more easily maneuvered.

The operation of the steam generator, regulation of detergent flow and atomization with steam at the jet are all under finnger-tip control of the operator at the steam gun or lance. Utilizing steam pressure up to 200 psig and without coil, tubes or heater elements to scale or burn out, the cleaner cleans and sterilizes safely, silently. *Livingstone Engineering Company, Worcester, Mass.*

Electronic soldering gun . . .

. . . that weighs only one and a half pounds is now on the market. Plugged in on ordinary 110-120 volt, ac—60 cycle, it's working hot 2½ seconds after trigger is pressed. The new gun cools quickly when trigger is released. Spotlight automatically illuminates work and new type extra long nosed tip enables reaching into tight spots. *Wen Products, Inc., 5808 Northwest Highway, Chicago 31, Ill.*

Continued on page 93

CHICAGO SOUTH SHORE AND SOUTH BEND RAILROAD has achieved unusual performance record with Flxible Coaches such as those shown in this picture. Using Cities Service "C" series motor oils over a period of three years, the Flxibles have averaged 91,000 miles before ring or bearing jobs and 211,000 miles before complete engine overhaul.

An Interesting Case History...

10 Flxibles Average 91,000 Miles Before Piston Ring or Bearing Jobs

• CHICAGO SOUTH SHORE & SOUTH BEND RAILROAD operates a mixed fleet of buses between Michigan City, Indiana, and Benton Harbor, Michigan. Recently, after a maintenance check of its coaches, the company released an unusual performance report on ten Flxibles!

The Supervisor's Report • According to G. A. Wade, Superintendant of the Motor Coach Division, the Flxible Coaches, traveling 260 miles per day per bus over a three year period, have averaged 91,000 miles before piston ring or bearing jobs . . . 211,000 miles before complete engine overhauls!

Cities Service Motor Oil Used • To achieve this maintenance record, which the company believes exceptional for their type of operation, only Cities Service "C" series motor oils were used, and, says Mr. Wade, they "contributed immeasurably to this performance and long engine life."

Similar Results Elsewhere • These outstanding results are typical of those achieved by the use of Cities Service lubricants in hundreds of bus and trucking operations throughout the country. You, too, can enjoy less maintenance and less down-time by using Cities Service lubricants. For information, contact your nearest Cities Service representative or write Cities Service Oil Company, Sixty Wall Tower, N. Y. 5, N. Y.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

Looks like something out of a *bad dream!*

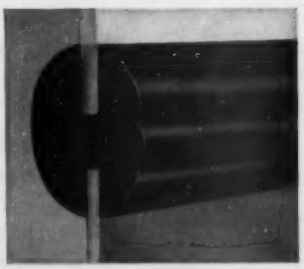
But it sure prevents leaking windshields and fixed windows!

It's a cross-section, greatly enlarged, of a piece of Inland Self-Sealing Weather Strip. All those odd curves, flat surfaces, corners and angles are designed and made *just that way* to give *permanent* leak-proofing on a *particular* windshield or fixed window.

Originated by Inland, it's the *only* weather-seal of its kind. Resilient rubber, permanently compressed, using no cement or binder. See how below.

Best for the vehicle *manufacturer* . . . less material and fast, one-man, low-cost installation. *Best* for the *user* . . . safer driving, no service, lower cost when replacing broken glass in vehicles.

INLAND MANUFACTURING DIVISION
General Motors Corporation • Dayton, Ohio



Here's how it works!

One of the simplest forms of Inland Self-Sealing Weather Strip is shown here. The Strip goes into the body panel or other opening. Then the glass goes into the Strip. Then the over-size filler strip goes into the locking channel, expanding it, compressing the whole Inland Self-Sealing Weather Strip into a complete and permanent leak-proof seal!

INLAND MANUFACTURING

Self-Sealing WEATHER STRIP

WHAT'S NEW

Continued from page 90

New vulcanizer . . .

. . . designed to repair permanently any size of tube, from a bike to a bus, whether natural or synthetic rubber, is now being offered.

According to the maker, the unique feature of the vulcanizer is that it does not merely affix a patch over a hole in the tube. Instead, it fills the hole, repairing length, width, and depth of damage with a fused, feather-edge weld. Correct temperature is automatically controlled. *Stenor, Inc., 10 Bridge St., Dept. P., New York 4, N. Y.*

Portable steam cleaner . . .

. . . featuring completely automatic operation has been announced. The only controls on the cleaner are two electric switches to start and stop the cleaner.

Increased cleaning power of 120 lbs pressure and 120 gals per hour is also featured. Comparable models of higher capacity are available. For complete information on the portable oil-fired steam cleaner, write *Quick Charge, Inc., 1750 N. E. 10th Street, Oklahoma City 4, Okla.*

Air cooled cushion . . .

. . . operates on the principle that evaporation is a cooling process. By speeding up the evaporation of perspiration through circulation of air, the cushion is said not only to give the sensation of a cooler ride, but actually provides for more coolness. The inner filling of the cushion is a spring unit, constructed of interlocking and interwoven spring helicals,

Continued on next page

Standard of the Industry Since 1936

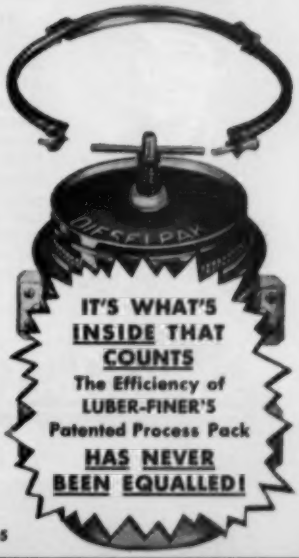
AND NOW!
EVEN BETTER THAN EVER!
Luber-finer

NEW REVOLUTIONARY MODELS
500-C and 750-C
Fully Covered by issued and pending U.S.A. and Foreign Patents

Save TIME and MONEY with Luber-finer's FASTER SIMPLIFIED Pack Replacement

Luber-finer Exclusive Features

- **SINGLE BOLT CLOSURE**—Ingeniously designed Clamping Ring utilizes Single Bolt Closure for quick, easy Pack Replacement.
- **POSITIVE SEALING GASKET**—Long lasting "O" ring type gasket assures leak-proof lid closure at all operating pressures.
- **NEW TYPE INTERNAL DESIGN AND CONSTRUCTION**—Provides multiple seal to eliminate the possibility of oil by-passing the Luber-finer pack.
- **DUAL SAFETY VALVES**—Prevents oil drain-back, assuring exact crank case oil level reading at all times, stops oil from circulating through unit if lines are reversed or if Luber-finer is otherwise improperly installed.
- **ONE-PIECE EXTRUDED STEEL HOUSING**—Plus rugged mounting brackets insures durability and long, trouble-free operation.
- **TIME-TESTED PATENTED FILTERING PROCESS** *Only* in genuine LUBER-FINER PACKS—the exclusive patented filtering process proved by millions of satisfied users the world over.



FOR COMPLETE INFORMATION WRITE DEPT. #5

LUBER-FINER, INC., 2514 So. Grand Avenue, Los Angeles 7

Extra quality
for lasting economy
TOLEDO
MICRO
BEARINGS
Toledo Micro Bearings Designed to Resist Fatigue, Last Longer
Original equipment on an ever-growing number of the leading makes of cars, Toledo Micro Bearings are designed to meet the demands of today's driving habits. They stand up under repeated overloading, continuous high-speed operation, cold engine runs, jack-rabbit starts.
Toledo Micro bearings are built on the principle that the thinner the babbitt lining, the greater the fatigue resistance of the bearing. Countless dynamometer tests and millions of miles of actual usage have established this principle and proven the economical, long-lasting quality of Toledo Micro Bearings.
REPAIRMAN
"Toledo Micro Bearings have proven their worth to me. Easy-to-install, they save job costs; long-lasting under severe usage, they build customer good will for me."
REPLACE BEARINGS BY THE SET!
Toledo bearings installed by the set are your surest bet for curing bearing troubles, oil pumping, loss of power. Toledo bearings are duplicates of originals used by many engine manufacturers.
SEE YOUR JOBBER TODAY!
The TOLEDO
STEEL PRODUCTS COMPANY, TOLEDO, OHIO

WHAT'S NEW

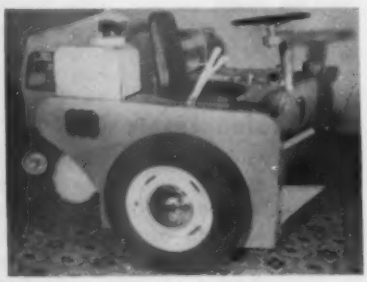
Continued from page 93

which resist pressure, and allow free and unrestricted circulation of air. The covering of the cushion is an open-weave porous fabric which encourages the circulation of air. It is this action that is said to speed evaporation. *Mitchell Manufacturing Company, Fort Smith Arkansas*

Fuel Filter . . .

. . . which blocks passage of foreign particles to the carburetor has been announced. Because of the large filtering area of 5.7 square inches, there is no restriction of the fuel passage.

This micro-bronze filter element will not shed particles into the filtered fuel, or crack or crumble from vibration. It is easily cleaned, and is not affected by water, alcohol or aromatic fuels. The fuel filter is complete with fittings to facilitate easy installation. *Kem Manufacturing Co., Inc., Fair Lawn, New Jersey*



Two new scrub sweepers . . .

. . . include a 44 inch marvel sweeper that sweeps from 27,000 to 159,000 square feet per hour and a 34 inch sweeper that sweeps 22,777 to 39,435

square feet per hour. The 44 inch sweeper is operated from a sitting position on the right front corner, permitting unobstructed vision. It has 10 hp 4-cylinder Allis Chalmers engine, with a self starter, generator, automotive type ignition, auto pulse fuel pump, 6 volt storage battery and 4¾ gallon fuel tank.

The 34 inch sweeper operates from a standing position on wide platform at the rear of the machine. It has 7.5 hp 1 cylinder Wisconsin air cooled gasoline engine and two gallon capacity gasoline tank. Shown in the photo is 44 inch sweeper. *Rapid Sales Corp., 3521 Lake St., Maywood, Ill.*

New drill press vise . . .

. . . designated Palmgren No. 300 has recently been announced. The drill press vise has jaws 3 inches wide which open 3 inches; depth of jaws is 1¾ inches.

This vise has removable steel jaw plates, and a heavy Acme thread adjusting screw. Machined slots are provided on either side of the vise to aid in clamping it to the machine table.

The vise is machined square on all sides and may be turned on either side, end or upside down for special operations. *Chicago Tool and Engineering Co., 8383 South Chicago Avenue, Chicago 17, Ill.*

New type oil filter . . .

. . . for both gasoline and diesel engines has recently been announced.

The new Dry-Type Micronic air filter is said to have many advantages over the standard type of air filter presently in use. Among these advantages are a higher degree of filtration, thereby reducing the entrance of airborne abrasives into an engine; a freer flow of air into the combustion chambers, and a reduced serviceability time. *Purolator Products, Inc., Rahway, N. J.*

New type thermostat . . .

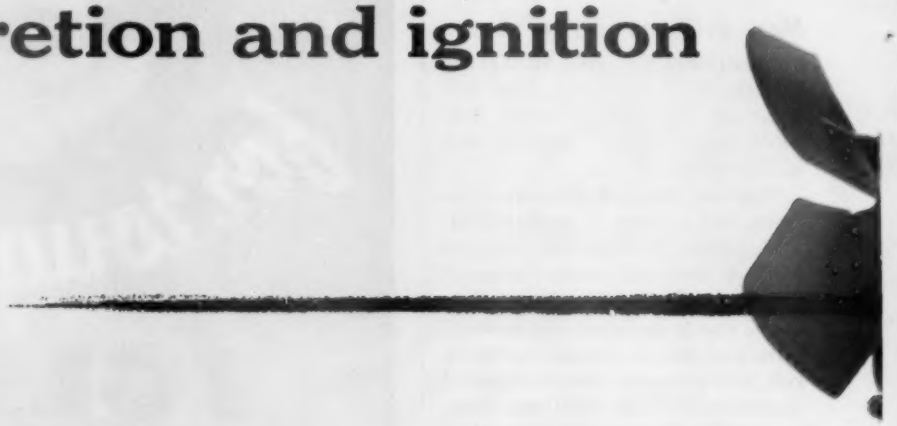
. . . actuated by a compact "Power-Pill" thermal unit has been developed for use in pressurized cooling systems in vehicles.

Fulton-Sylphon Division, Robertshaw-Fulton Controls Company, Box 400, Knoxville, Tenn.

Extra rugged
TOLEDO
CL-77
BEARING
for tough jobs
TOLEDO
HEAVY DUTY
BEARINGS
FAMOUS TOLEDO CL-77 BEARINGS
OUTLAST ORDINARY BEARINGS 2 to 1
The long-lived Toledo CL-77 bearing is made for the most rugged type of service. A patented nickel barrier, or dam, gives greater fatigue resistance and greater corrosion resistance to the bearing surface layer . . . Thoroughly proven in millions of miles of actual usage, you can depend on Toledo CL-77 bearings to give unequalled performance in engines that operate under the most trying conditions.
FLEET OWNER
"Toledo CL-77 bearings have proven themselves in the hardest-working units of my fleet. They mean fewer overhauls, less time out for service. That means big savings for me."
A
B
C
D
Cross section, CL-77 bearing:
(a) Tin-lead over-plate.
(b) Patented nickel dam.
(c) Copper-lead base metal.
(d) Steel back.
The TOLEDO
STEEL PRODUCTS COMPANY, TOLEDO, OHIO

Announcing...

revolutionary new diesel fuel system... as simple as gasoline carburetion and ignition



Exclusive PT Fuel System now standard on all Cummins Diesels

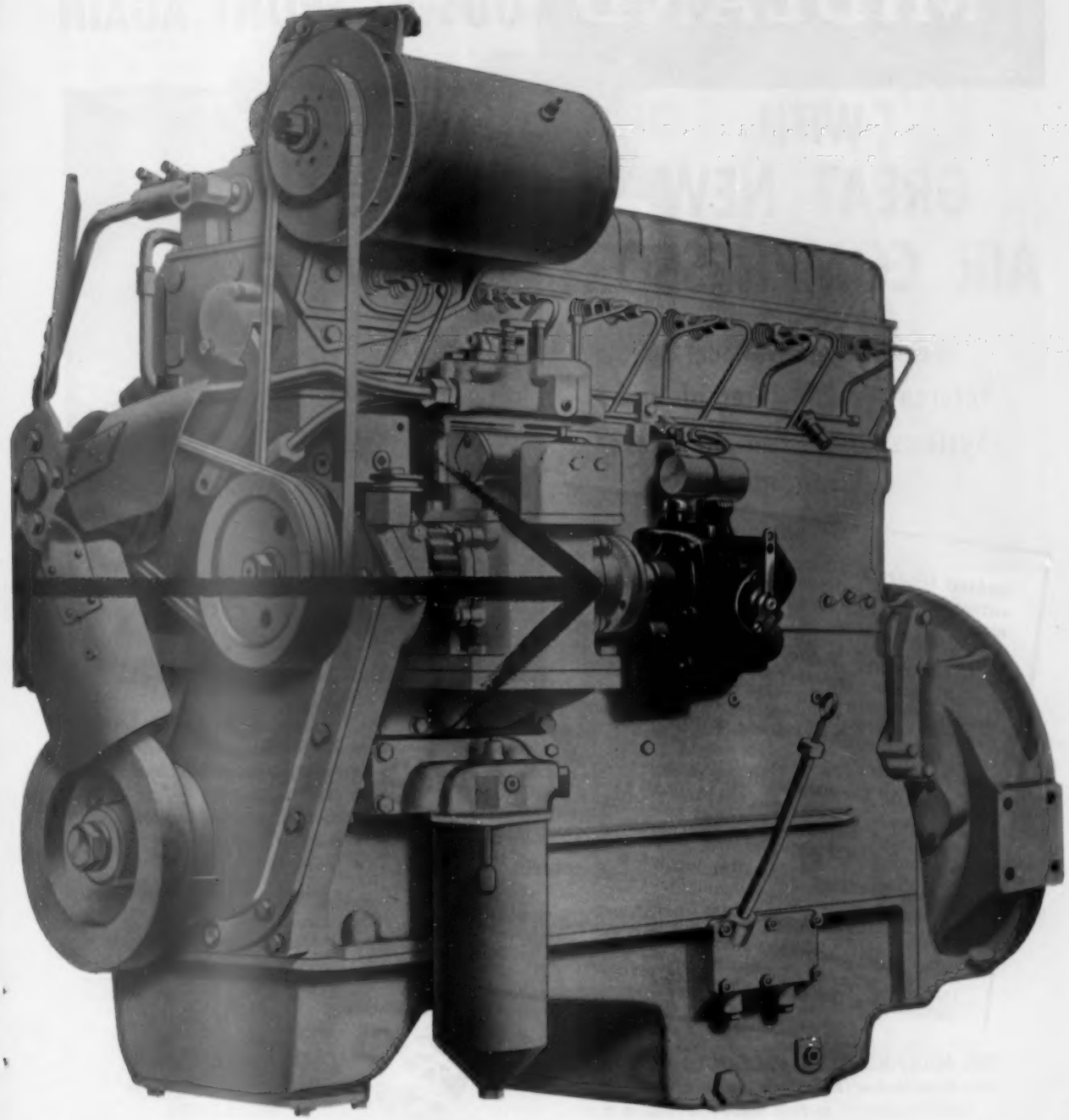
- Drastically reduces maintenance costs
- All mechanics can understand and service it
- Pump weighs only 13 pounds—system has no racks, check valves, metering plungers, discs, floats, etc.— does not have to be timed to engine
- Adaptable to all Cummins Diesels built since 1932

Write for your copy of descriptive folder "Cummins PT Fuel System."

CUMMINS **Cummins**

Engine Company, Inc., Columbus, Indiana

Leader in rugged, lightweight, high-speed diesels (60-600 h.p.)



MIDLAND OUT IN FRONT AGAIN

WITH GREAT NEW AIR COMPRESSOR!

Newly-Designed Model By Veteran Manufacturer of Brake Systems *Gives You All These Advantages*

Greatest Efficiency: Patented automatic inlet valves built into cylinder head, permitting greatest efficiency possible in a compressor. No lost piston travel.

Fastest Recovery: Valve mechanism makes for fastest possible recovery of pressure, a tremendously important advantage where frequent and repeated brake applications are necessary — such as in dense city traffic or on steep downgrades.

Minimum Oil Consumption: Lack of high vacuum on suction stroke — another result of Midland's patented automatic inlet valves — reduces oil consumption to minimum, practically eliminates carbon formation.

Governor Mounting: Governor located on side of compressor simplifies installation. (Governor can be remotely installed if need be.)

Cooler Operation: Inlet valves remain open so long as tank is at desired pressure, allowing atmospheric air to circulate through compressor for cooler operation.

PLUS

- ***Ball Bearing Mounted Crankshaft***
- ***Full High Pressure Lubrication System***
- ***Less Weight***
- ***Operates with Less Horse Power***
- ***Low Cost Maintenance***
- ***Service Features:***

  Unloading mechanism needs no adjustment. Replaceable automotive precision type connecting rod bearings. Factory rebuilt units available for service.

For complete details, see your nearest Midland dealer—or write factory direct.

THE MIDLAND STEEL PRODUCTS COMPANY
3641 E. Milwaukee Ave. • Detroit 11, Michigan
Export Department: **38 Pearl Street, New York, N. Y.**

Those Who Know Power Brakes Choose **MIDLAND!**

GO MIDLAND — AND STOP SAFELY!

Consulting Dept...

Continued from page 37

the route is deleted to put the coach back on time, we consider a road failure existed. Again, we feel there should be a standard classification for comparison purposes, or just quit trying to compare.

E. D. Holme, Supt. of Eqpt.
St. Joseph Light & Power Co.

On our property every time the phone rings regarding the performance of a bus . . . it is classified as a road failure and registered as such . . . Road calls chargeable to maintenance, poor design, etc. are classified as "A" calls. Unnecessary calls due to errors on the part of drivers, such as forgetting to turn on the proper switches, etc., are classified as "B" calls. Accidents are classified as "C" calls.

There is no distinction between delays and failures, and the mechanical department of this company makes almost no distinction between classifications. In other words, we run a certain number of miles per telephone call and our efficiency is judged on that basis.

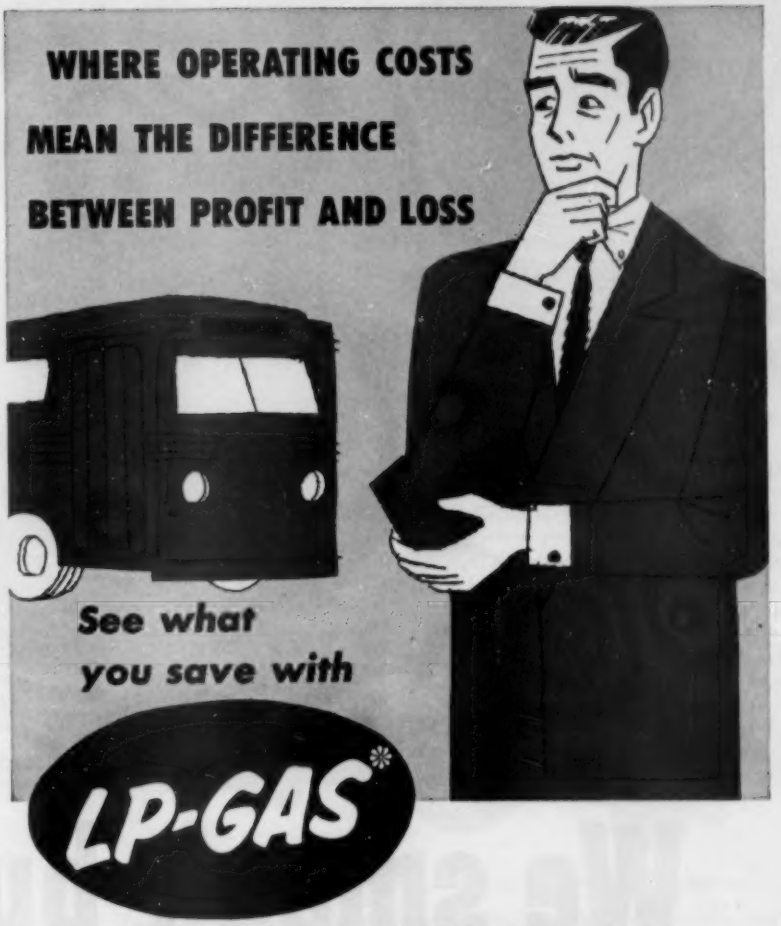
C. O. Sparhawk, Vice Pres.,
United Transit Co.

A road failure on our property is when the driver alone cannot get equipment back to terminal, accidents excepted. Maintenance failure includes: bad odor; fan belt breakage; fuel pump failure; batteries, etc., anything, in fact, that might be overlooked by shopmen on inspection. Operation failure includes: Flat tires; broken springs; or any similar failure that cannot be anticipated. Delay is charged when operator gets equipment to terminal late, but does not need help of mechanic. Failure is charged when shop man is needed to repair or assist driver before bus can be returned to terminal.

G. A. Wade,
Supt. of Motor Coaches
Chi., So. Shore & So. Bend RR

Reference the problem of road failure, here is the standard adopted by the Tri-State Maintenance Men's Association: A road call is when a person has been dispatched to take care of any trouble reported on the

Continued on page 102



Mr. Motor Coach Operator . . . LP-Gas does much more than reduce fuel costs. BUS LINE OPERATORS REPORT AMAZING SAVINGS IN REPAIRS AND MAINTENANCE! **LP-Gas** can eliminate carbon deposits . . . end crankcase dilution and pollution . . . *save dollar upon dollar in 4 to 5 times longer oil life!*

LP-Gas protects your equipment against the cylinder wall washing that robs vital engine parts of protective oil coatings . . . you can get 50% to 75% longer profit periods between expensive ring and overhaul jobs!

LP-Gas burns cleanly—eliminating offensive exhaust odors and hydrocarbon exhaust residues that are such an important cause of smog conditions.

Yes . . . with LP-Gas, even in the first 25,000 miles of operation, bus operators have been able to save per vehicle:

14 oil changes • 20% on fuel • 6 oil filter cartridges • 1 carburetor overhaul • 1 set of spark plugs • no fuel pump failures

and that's just a start!

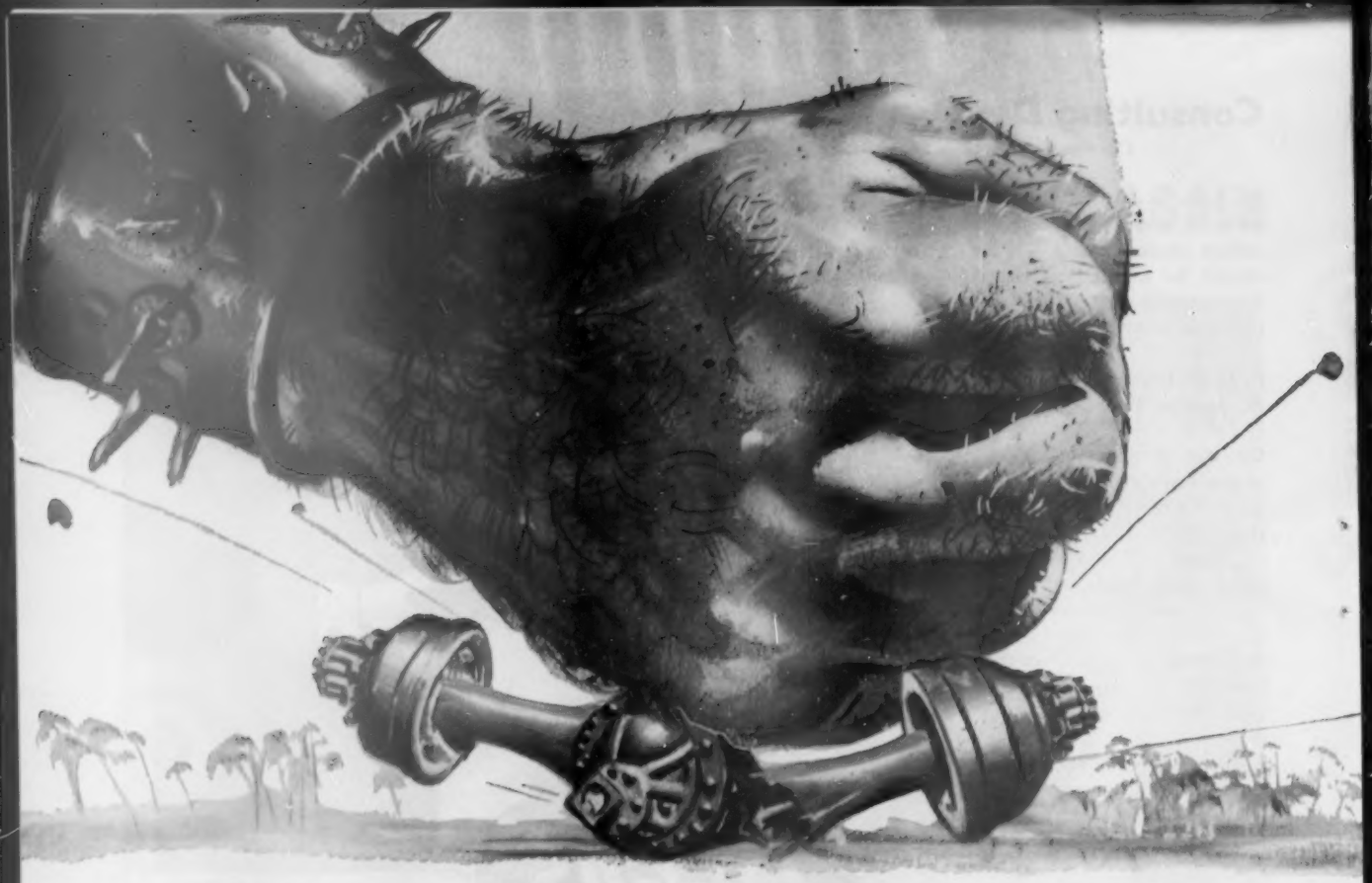
If you are caught between rising costs and transportation fare ceilings . . . it will pay you to investigate LP-GAS operation.

See your local LP-Gas dealer today. LP-Gas Information Service, Dept. BT, 185 N. Wabash Ave., Chicago 1, Illinois.

ENDS OFFENSIVE EXHAUST ODORS!

LP GAS — BOTTLED-TANK — BUTANE-PROPANE — THE MODERN FUEL Wherever you are

*LP-GAS may be PROPANE or BUTANE or a mixture of both—but it's all Liquefied Petroleum Gas.



We smash bus axles

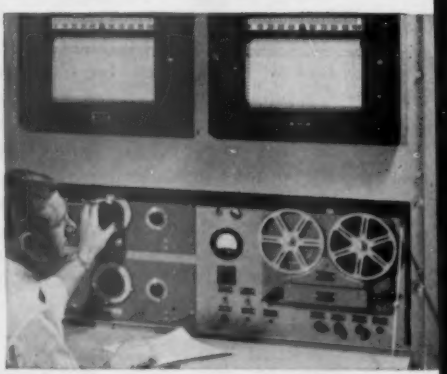
in the new Timken-Detroit indoor proving ground . . . and only Timken has it!

We twist, bend, jounce and jerk them. Duplicate every possible operating condition. Then toss in some "torture-tricks" of our own.

It's calculated destruction! But we know, and can tell you in advance, that a Timken-Detroit axle can take a murderous beating on the job.

Our "Torture Chamber" is a multi-thousand acre proving ground *capsuled into one room!* In it our engineers can put 50 years of experience to work . . . for you . . . experience gained in building axles for trucks, buses, trailers, farm machinery. Stock axles and gearing are subjected *indoors* to any *outdoor* operating condition—under scientific control and analysis.

The result? You enjoy longer axle life; less maintenance, repairs and downtime; lower operating costs, higher profits. Good reasons why Timken-Detroit axles are the choice of the leading manufacturers and owners.



This is our "Torture Tester." He gives axles and gearing the works in the "Torture Chamber." Above him are graphs showing speed and torque performance under any conceivable operating condition. Soft ground . . . twisting roads . . . long grades or fast highway speeds. With special dials, recorders, and electronic devices he actually *drives* the axle with scientific precision—*from his chair!*

How TDA proves axle quality in this "Torture Chamber"

We take an axle out of stock . . . then run a test like twisting the axle shaft 14°, backward and forward—36 times a minute, 24 hours a day, days on end. Or simulate a chuck hole shock every 4 seconds, 24 hours a day for months. Even "bend test" an axle housing for 1,000,000 cycles.

Tots and teens must get to school . . . safely, comfortably. That's why Timken-Detroit axles are *vital!* So rugged we can take a TDA axle shaft in our indoor proving ground and twist it 14° back and forth, 36 times a minute, 24 hours a day, week after week! Or simulate the punishment an axle housing would get, hitting a chuck hole with capacity load every 4 seconds, day and night—for months! Real assurance of dependability!

Intercity buses won't make a cent sitting in the shop. That's why Timken-Detroit axles get the nod from successful operators. Why? Because they've been "torture-tested" in our indoor proving ground—like simulating a nonstop, uphill run with full load at "X m.p.h." from New York to California! In fact we can duplicate your toughest schedules, winter or summer, day after day . . . proof that Timken-Detroit axles cost less to maintain.

to bits

Specify Timken-Detroit axles with Hypoid gearing

Hypoid gearing for bus axles was pioneered by Timken-Detroit. Proved in billions of ton-miles of actual operation. Designed to give the slower gear ratios necessary for modern engines without loss of strength. Pinion is bigger, stronger . . . bearings are larger . . . more teeth in contact reducing loading per unit of contact area. Torque transmitting capacity increased to step up performance and rugged power.

You get TDA brakes, too!

Every Timken-Detroit bus axle is equipped with Timken-Detroit brakes. So, when you specify "Timken-Detroit" on your new rubber-tired equipment you *know* you're getting the low-cost operating combination that's the "Accepted Standard" of the industry. Make sure every new transit vehicle you buy is Timken-Detroit axle-equipped!

TIMKEN *Detroit* **AXLES**

TIMKEN DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted TDA Standard

TRADE MARK REGISTERED

"TORTURE-TESTED"
to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

Increase axle life with Genuine TDA Original Equipment Parts

Take no chances with ordinary replacement parts. For sure, dependable factory-type jobs, look to genuine Timken-Detroit axle parts kits—identical to original equipment.

Each kit is *complete*—gives you everything you need—in one handy package. Gaskets and shim parts, brake liners, steering knuckles, differential gears—for every size of brake and axle. Cut labor and adjustment costs to a minimum. Get your buses out of the shop and back on the road far quicker!

Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

The Consulting Department . . .

Continued from page 99

road. These calls are divided into: Chargeable to the mechanical department, not chargeable to the mechanical department, and service calls. The latter is when a service truck is dispatched and the mechanic can make minor repairs without delay to the schedule. . . . Classification of road calls is: Non-Chargeable Mechanical: Accident; Tires; No trouble found; Transportation changes; Miscellaneous. Chargeable Mechanical: Includes various trouble under the following classifications: Air; Body; Chassis; Cooling System; Electrical; Engine; Fuel System; Transmission. All classifications are numbered according to code.

R. H. Moore, Supt. of Eqpt.
Conestoga Transportation Co.

In our trolley bus division a road failure or turn-in is any bus which is delayed six minutes or more or removed from its run because of mechanical failure. In our motor coach division, a road failure is a bus that is delayed six minutes or more because of mechanical failure. A bus may be changed off without charge if the delay does not exceed six minutes.

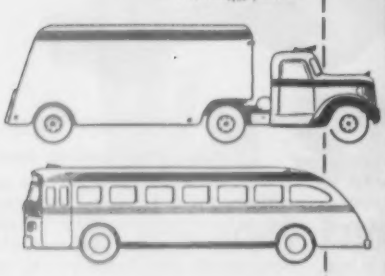
Non-chargeable failures are accidents, tires, sick people on bus and other items not under control of the Mechanical Department.

R. Wright, Supt. of Eqpt.
Cincinnati Transit Co.

LP-GAS IS THE Modern Fuel FOR TRUCKS AND BUSSES

write for this FREE FOLDER now

and find out why



Lower fuel cost . . . longer engine life . . . less maintenance . . . smoother performance. These are just a few of the advantages that are yours when you switch to LP-Gas, the modern fuel.

Leading truck, bus and engine manufacturers today are offering LP-Gas carburetion as optional equipment because it is universally used and accepted. Truck and bus owners everywhere are converting to its use.

LP-Gas will help you overcome the majority of maintenance problems. It is a clean, dry burning fuel that does not dilute oil or cause wash-down of cylinder walls. No carbon can form in the engine.

The folder shown above will bring you complete information on this modern fuel. Free on request.

Established 1932
BUTANE ALGAS PROPANE
NATURAL GAS

AMERICAN LIQUID GAS CORPORATION
1109 Santa Fe Ave., Los Angeles 21, Calif.

Cable address "ALGAS"

New Bus Travel . . .

Continued from page 27

Passengers could check their luggage through and then be shuttled from central stations to the throughway in connecting buses. At their destination end, they would receive almost door service in connecting buses from the throughway station. This would save the present tedious delays in the through service and save the time and cost of operation in congested city streets.

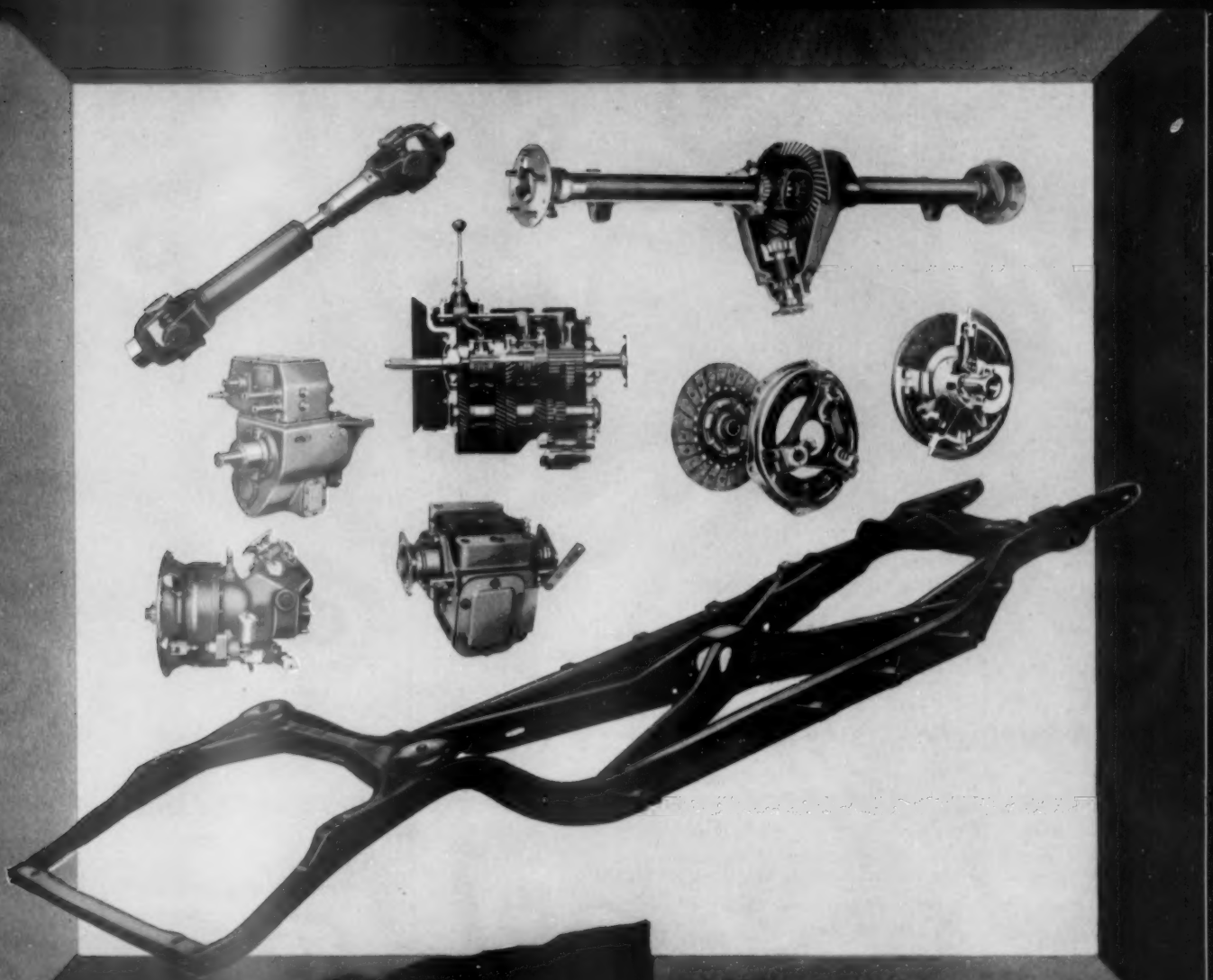
On a New York-to-Pittsburgh run, for instance, such connecting service at Newark, Trenton, Camden, Philadelphia and Harrisburg could slice hours off present schedules.

Innovation of this type of service opens whole new vistas for bus passenger traffic. On relatively short runs of up to 100 or 200 miles, where air service cannot compete even now, buses could woo their lost traffic back from the private automobile.

It certainly would be just as fast, cheaper, more restful and perhaps even more comfortable to use that type of bus service than one's own automobile from New York to Albany or Philadelphia, for instance. Even today, buses are operating between New York and Philadelphia via the New Jersey Turnpike in shorter time than is possible by rail or air.

And on longer trips which still fall in the short-haul category, say from 200 to 400 miles, the bus might vie

Continued on page 105



WE SUPPLY A WIDE VARIETY OF UNITS TO THE AUTOMOTIVE INDUSTRY

The Dana enterprises are widely diversified in their application to the modern automobile, truck, bus, tractor, and other types of vehicles.

This is the result of 50 years of steady growth and service to the industry. Since 1904, the world has seen many changes in automotive engineering. Dana has kept pace with these advancements, designing and developing many different functional units that are considered

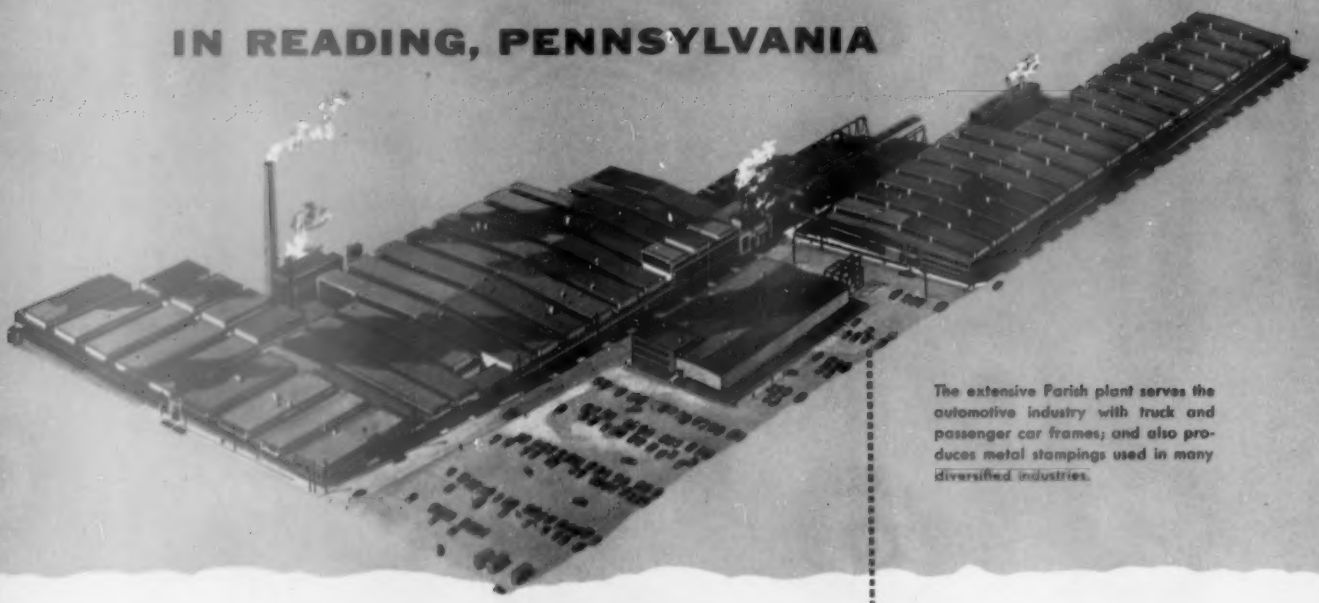
"The Standard of the Industry"

ENGINEERING

DANA

MANUFACTURING

THIS IS THE PARISH PRESSED STEEL COMPANY IN READING, PENNSYLVANIA



The extensive Parish plant serves the automotive industry with truck and passenger car frames; and also produces metal stampings used in many diversified industries.

PRODUCER OF QUALITY CHASSIS FRAMES

for Many Leading Manufacturers of Automotive Vehicles

Modern production equipment combined with manufacturing "know how" are prerequisites for supplying chassis frames to manufacturers of passenger cars and other automotive vehicles. Facilities at Parish Pressed Steel meet these requirements; and are also ideally suited to the production of a wide variety of pressed metal parts and assemblies.

Parish is a substantial supplier of frames for the Automobile, Truck, Bus and Trailer Industries, as well as a large number of other parts for the Automotive, Appliance, Railroad and general manufacturing industries.

PPS

PARISH

Pressed Steel Company, Reading, Pa.

(A Wholly-Owned Subsidiary of Dana Corporation)

ENGINEERING **DANA** MANUFACTURING

TRANSMISSIONS • UNIVERSAL JOINTS • PROPELLER SHAFTS • BROWN-LIPE and AUBURN CLUTCHES • FORGINGS • AXLES • STAMPINGS • SPICER BROWN-LIPE GEAR BOXES • PARISH FRAMES • TORQUE CONVERTERS • POWER TAKE-OFFS • POWER TAKE-OFF JOINTS • RAIL CAR DRIVES • RAILWAY GENERATOR DRIVES • AIRCRAFT GEARS • WELDED TUBING

New Bus Travel...

Continued from page 102

even in time with the airplane when account is taken of the time lost in ferrying to and from far-outlying airports and of the infrequency of flights compared with bus schedules.

There are millions of ripe dollars waiting for enterprising motor coach operators to pluck if they match their service with the public need by creating a new vehicle to match the excellent roads becoming available.

The latest developments for safety and comfort would add little to the cost of operation but would insure fewer unsold seats. These innovations are practically here:

Power steering to make the throughway bus as quickly and easily responsive to the wheel as a sedan.

A "dead man's control" to bring it easily and smoothly to a halt if the driver should have even a momentary lapse of attention.

Air conditioning with individual outlets controlled at each seat.

Radio individually controlled with outlets installed in the headrest of each contour seat.

Tinted safety windows of the push-out or drop type for emergencies or in case of air conditioning failure.

Compressed air or hydraulic suspension.

A washroom and separate chemical-toilet lavatories for men and women.

Even radio-telephone service or a television-lounge arrangement are within practical and economical range.

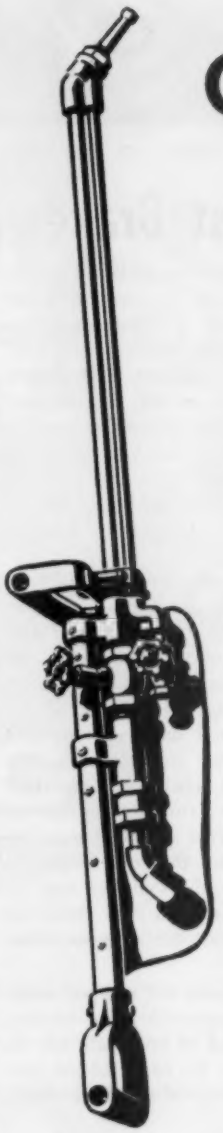
Such a bus on modern throughways could outspeed competition and outbid it for passenger dollars for distances up to 500 miles and possibly beyond. It would save the passenger money as well as time without imposing on him any sacrifice of comfort or convenience in travel.

For years, the cry has been that the roadbuilders have fallen far behind the automotive manufacturers. Now, at least as far as buses are concerned, the roadbuilders have shot ahead with a right of way having broad curves, easy grades, and no intersections.

The only question is how well and how fast the bus industry will catch up with this bright new opportunity.

your best bet for better steam-detergent cleaning

OAKITE
Composition No. 92



Today, more and more fleet owners are relying on steam cleaning for expediting such tough jobs as reconditioning chassis, cleaning motor blocks and stripping paint. But, for best all-around results and economy, careful thought should be given to the selection of the *right* cleaning compound.

Oakite Composition No. 92 is a performance-proved detergent. It is specially designed to give expert results wherever steam-detergent cleaning is applicable. Consider these important advantages found in Oakite Composition No. 92:

- **Dissolves readily in hot water**
- **Cleans thoroughly at 2 oz. per gallon**
- **Doesn't clog steam coils**
- **Prevents hard water scale**
- **Gives off no offensive fumes**
- **Safe, pleasant to use**
- **Rinses freely from all surfaces**
- **Does not harden in storage**

Write for complete details on Oakite Composition No. 92. Also request illustrated folder describing the many available models of Oakite Steam-Detergent Guns. Oakite Products, Inc., 16C Rector St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. and Canada

NEW Precision made parts are necessary to restore worn shock absorbers to guaranteed dependable performance.

Practical economy-wise maintenance men are taking advantage of our fast reliable service.

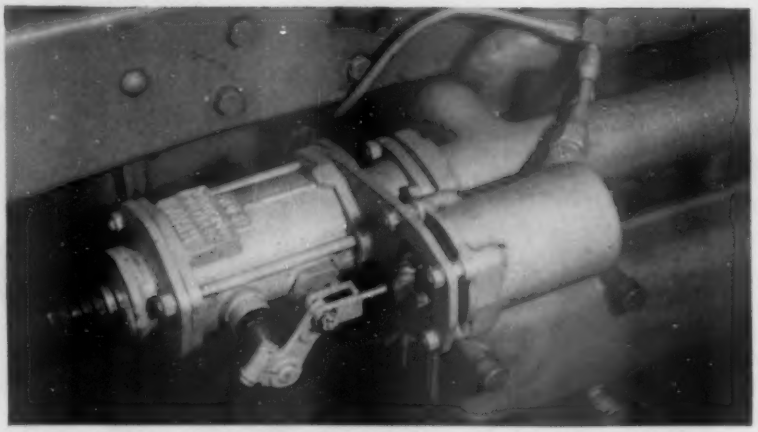
All new parts are manufactured by us to obtain the high standards we employ in remanufacturing your shock absorbers. Precision assembling assures dependable performance. We are completely equipped and qualified by experience to render the prompt service you need. Send your worn shocks to us and save dollars.

National Transport Supply, Inc.

SHOCK ABSORBER, STARTER DRIVE AND WATER PUMP SERVICE

OFFICE AND PLANT

545 E. Hancock Detroit 1, Mich.



BRITISH BRAKE LOOKS LIKE THIS INSTALLED. DESIGNERS SAY THESE . . .

Exhaust Brakes Add to Safety

• MUCH ATTENTION is being shown in Great Britain the exhaust brake pictured above. Its manufacturers boast that it affords additional road safety and a less fatigued driver. They claim its perfect for wet and icy roads because it provides perfectly balance braking through the driven wheels. One other advantage: drivers can descend hills without shifting gears or using the regular braking system.

The Parkwood exhaust brake with Clayton Dewandre controls is a combination of the Oetiker brake system with vacuum or compressed air controls devised by Clayton Dewandre, Ltd., England.

The Parkwood unit consists of a flanged cylinder inserted into the exhaust system between the manifold and the silencer (or any flexible exhaust pipe). This cylinder contains a butterfly valve that can either lie horizontally to the cylinder and allow exhaust gases to pass freely or be made to close the cylinder when rotated.

Carbon deposits are scraped away as the valve approaches the vertical position, instead of being allowed to build up under the edges of the butterfly, so that a good seal is retained.

The closure of the butterfly is brought about by an outside lever; the important point of the design here is that the spindle passing through the cylinder is offset behind the butterfly in the zone that is free from pressure, and is linked internally to the valve.

There is a hand operated vacuum control; a compressed-air control—also hand operated; a brake-pedal control with electrical and vacuum or air-pressure operation; and an accelerator-pedal control acting similarly to the brake pedal system, but with reverse action.

For air-pressure operation, the lever is pushed forward to close the butterfly; the lever is reversed for a pulling action, and the alternative cylinder is repositioned for vacuum operation.

For hand control there is a lever-operated value clamped to the steering column.

If brake-pedal control is used for either supply system, a micro-switch is fitted into a hinged pad bolted to the normal brake pedal pad. Slight movement of the hinged pad against light spring pressure closes the micro-switch, and this in turn controls a solenoid-operated vacuum or air-pressure control valve connected to the brake reservoir and to the operating cylinder of the exhaust-brake valve.

The remaining alternative controls are activated by the accelerator pedal. For use with them, however, the micro-switch is operated by the underside of the heel of the accelerator pedal so that the exhaust brake is brought into use when the accelerator pedal is in its off position.

The exhaust brake valve is by Parkwood Ltd., Sunbury-On-Thames, Middlesex, England and the power control is by the Clayton Dewandre Company, Ltd., Lincoln, England.

- for engine capacities from 135 to 600 lbs.-ft. torque
- single or double plate
- plate sizes from 9 to 17 inches

LONG

. . . for heavy-duty clutch requirements

Insistence upon the finest quality has been an inflexible practice at the Long Manufacturing Division for over 50 years. Long quality is proven with the millions of Long Clutches being road tested every day on cars, trucks, buses and tractors.

LONG MANUFACTURING DIVISION • BORG-WARNER CORPORATION

Detroit 12, Michigan, and Windsor, Ontario

CLUTCHES • RADIATORS • TORQUE CONVERTERS • OIL COOLERS

REDUCE MAINTENANCE COSTS

Use Moto-Gard to reduce Maintenance Costs and insure Longer Life for Your Motors. Moto-Gard will protect your Motor against Damage from an Oil Failure or Overheating. It automatically stops the Motor Ahead of Any Damage if the Oil Pressure runs too low or the Motor gets too hot. MOTO-GARD will make your equipment Safer and More Profitable.

REASONABLY PRICED . . . EASILY INSTALLED

Full Information on Request

"Don't Buy Motors—Buy Moto-Gard"

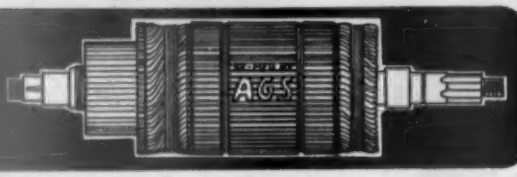
THE MOTO-GARD COMPANY

Box 2425

Raleigh, North Carolina

REBUILDING

SPECIALIZED
Re-Manufacturing
SERVICE . . .



A Trial Order will prove that ED. FUSCH can save money for you

- REPAIRS ON BUS ARMATURES SPIRAL STARTER SHAFTS
- REMANUFACTURED BUS ARMATURES
- PRECISION WORK—PROMPT SERVICE
- ALL WORK GUARANTEED
- SPECIALISTS IN THIS FIELD SINCE 1931

★ SEND FOR CATALOG

Precision Work
Prompt Service
20 Years Experience

AUTOMOTIVE GENERATOR SERVICE
THE HOUSE OF BUS ARMATURES
E. J. FUSCH, President
4052-54 N. BROADWAY ST. LOUIS 7, MO.

Manufacturing Briefs

The Hunt-Spiller Manufacturing Co. has appointed the H. G. Davis Co. as exclusive distributor for the sale of its gun iron brake drums in the New England states.

The board of directors of ACF-Brill Motors Co. has approved a plan separating its Hall-Scott Division, only ACF-Brill west coast facility, from the parent company.

Assets of the Division will be transferred to a new corporation to be known as Hall-Scott Motors Co. In return, ACF-Brill stockholders will get 15-year debentures and common stock in the new company on a share-for share basis.

National Pneumatic Co. and Holtzer-Cabot Divisions have set up a new assembly-production line to handle the complete assembly of door operators for subway cars. The new facilities have been specifically designed and engineered to reduce manufacturing costs and speed up delivery dates.

Five new Gray Line view-top buses manufactured by C. D. Beck and Company, were placed in service recently by Gene E. Holmes, president of San Francisco Gray Lines.

The "biggest booth show in the world," the Automotive Service Industries Show, is set for Chicago's Navy Pier Dec. 8 to 10. About 650 manufacturers are expected to attract a record number of wholesalers.

Flexible Company has announced the delivery of two 29-passenger Visicoaches to Universal Pictures for use in transporting personnel.

In the past few months, the Wagner Electric Corp. has opened two new offices, one in Atlanta, Ga., and one in Los Angeles. The former office consolidates the company's electrical and automotive branch offices.

National Transitads and Philadelphia Transportation Co. have decided on a long-term extension of their agreement. Transitads maintains a force of eight full-time Philadelphia salesmen, plus salesmen in other cities to sell space on and in PTC vehicles and on subway and elevated posters.

exceeds SAE SPECIFICATIONS

Use Delco Super 11 heavy-duty brake fluid for the TOUGH braking jobs!

Delco Super 11 heavy-duty brake fluid exceeds SAE specification 70R1 which establishes performance standards for heavy-duty brake fluid, including operating temperature ranges, stability, lubrication, effect on metals and rubber – to name a few—and also exceeds U.S. Federal specification VV-F-451a.

Delco Super 11 is packaged in any amount convenient for you, from 16-ounce to 54-gallon containers. Place your order with your United Motors distributor today.

A GENERAL MOTORS PRODUCT — A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALERS EVERYWHERE

moraine products

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

Pick EARLL and you can't go wrong!

EARLL

TROLLEY RETRIEVERS

Transit men have learned from years of use that EARLL Trolley Retrievers and Catchers are needed for better service!

Both the Retriever and Catcher are made with precision accuracy which, combined with built-in ruggedness and strength, make them *efficient* and *economical in operation.*

They function quietly, require a minimum of care and attention, and are long-lasting. For further details, write us today.

FOREIGN AGENTS
INTERNATIONAL GENERAL ELECTRIC CO.
570 LEXINGTON AVE.,
NEW YORK 22, N. Y.

CANADIAN DISTRIBUTORS
RAILWAY & POWER ENGINEERING CORPORATION, LTD.
TORONTO, ONT.

C. I. EARLL COMPANY, Inc.

YORK, PA.

prevents vapor lock!

Bendix

ELECTRIC FUEL PUMP for trucks, buses and passenger cars

Learn more about this new and improved fuel pump. Write for descriptive folder and specifications.

WRITE DEPARTMENT A

*REG. U. S. PAT. OFF.

ECLIPSE MACHINE DIVISION
ELMIRA, N. Y.

Bendix AVIATION

Bendix* Electric Fuel Pump

Bendix* Folo-Thru Starter Drive

Stromberg* Carburetor

About People . . .

Continued from page 60

the Motor Products Corporation as vice-president in charge of manufacturing.

Marsden Thompson, assistant director of customer research for General Motors has been appointed director of GM customer research section.

Harold Traylor has been named manager of the Union Bus Terminal in Durham, N. C. He succeeds **W. B. Mullin** who will resume his work as passenger sales representative for Carolina Trailways.

C. H. Belford has been named vice president and director of the Colonial Coach Lines (Ottawa, Canada) and its subsidiary, Kingston City Coach Co., Ltd.

D. G. Cunningham has been named as director of the company.

Rolly W. Fitch has been named manager of the Battery Plant division of Electric Auto-Lite Company, Toledo.

He replaces **J. A. Minch** former vice president in charge of battery production, who resigned recently.

C. Allen Koenig, sales manager of the National Pneumatic Company, Inc., has resigned from the company.

The Fare Box . . .

Continued from page 60

Nueces Transportation Co., Tex. • Applied for two-cent hike on student, half-fare rides, to seven cents.

Mobile City Lines, Ala. • Asked flat 10 cents in place of three tokens for 25 cents.

Rollo Transit Corp., N. J. • One zone fares from 10 to 15 cents; two zones, 20 to 30 cents; three zones, 25 to 45 cents; four zones up 15 cents to 45 cents; five zone, from 40 to 50 cents. Asked one-third increase in commuter fares.

Metropolitan Coach Lines and Los Angeles Transit Lines, Cal. • Jointly asked single zone increase from 15 to 17 cents, from five to six cents in each additional zone; seek increase in 40-ride school ticket books.

Red Arrow Lines, Pa. • Asked three-cent increase in basic cash fare up to 18 cents; token rate of three for 50 cents.

Increases Granted . . .

Palo Alto Transit Co., Cal. • PUC has authorized five-cent increase on most fares.

La Crosse Transit Co., Wis. • Made permanent: 15-cent cash fare, four tokens for 50 cents; children will pay ten cents, or 12 tokens for $1. Student fares to be 10 cents, no tokens.

Citizens Coach Co., Ill. • Tokens up from four for 50 cents to four for 55 cents. Children's cash fare hiked from seven to ten cents.

Fairbury Bus Co., Neb. • Cash fare to 15 from 10 cents. Tokens at eight for a dollar from 12 for a dollar.

Cincinnati Transit Co., Ohio • Two-cent charge for transfers; cash fare stays at 20 cents. Tickets, six for 95 cents, up to four for 75 cents.

Danville Traction and Power Co., Va. • Fares up from ten cents to 12 cents with four tokens for 40 cents.

Cleveland Transit System, Ohio • Basic 15-cent fare remains unchanged; transfers up from one to three cents; tickets go from seven for $1 to six for 90 cents on locals; express fares up to five tickets for $1. Student fares also revised.

Hamilton City Lines, O. • Up from a flat 10-cent fare to 15 cents and five tokens for 65 cents. Transfers are now free, instead of two for a nickel. Student rates up from five cents to 10 cents cash or five for 35 cents.

Ottawa Transportation Commission • Cash fare to 15 from 10 cents, with 10 tickets still selling for $1. Shopping hour rates of 12 tickets for one dollar.

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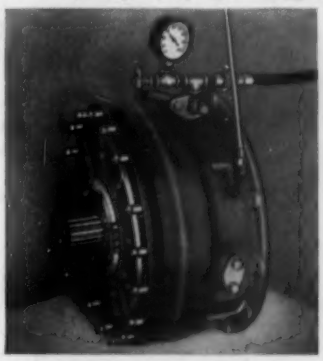

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The Changing Scene

• Toledo ownership shifted . . . Vapor Heating opens new plant...LPG mileage greater...Columbus enlarges its fleet . . . Oil figures released . . . New bus invented.

Toledo Owners Change

Ownership of the Community Traction Co., Toledo, Ohio, was recently transferred to a nonprofit foundation established by Cities Service Co. for "educational and charitable uses."

The company's preferred stock and bonds formerly were owned by Cities Service Diverse Assets, a wholly-owned subsidiary of Cities Service Co. New owners are the Cities Service Foundation.

Vapor Heating Shift

Vapor Heating Corporation of Chicago, manufacturer of heating systems, Vapor-Clarkson steam generators and electronic controls, has moved its manufacturing operations and general offices into its two million dollar plant in Niles, a suburb on the northwest edge of Chicago, 15 miles from the old plant in the city.

The major moving operation filled 721 trailer trucks and 13 freight cars and was carried out without closing the entire plant for one working day.

LPG Fleets Growing

Transport companies operating buses on Liquefied Petroleum Gas drove the buses to a new high of 60,537,447 total miles in 1953.

Added to this new peak is an increase of over 16 per cent in the amount of LPG-powered buses in operation at the close of 1953. A total of 1,663 buses were operating then with 411 contemplated additions to this fleet for 1954. These 411 buses on order mean that the industry will have more than 2,000 LPG buses in operation at the end of this year.

Columbus Transit Adds

Purchase of 12 more new buses by the Columbus Transit Co. at a cost of approximately $185,000 was announced recently by Oscar R. Hott, president.

Seven new 45-passenger, air-suspension diesel buses and five new 31-passenger gasoline powered buses will be delivered this fall, according to General Motors officials.

New Oil Statistics

A new edition of an oil reference booklet, containing up-to-date statistics and other data on the petroleum industry, has recently been made available.

Published by the American Petroleum Institute and called "Facts About Oil", the 32-page booklet is illustrated with photograph and line drawing and provides data on origin, exploration, drilling, production, transportation, refining, supply and demand, marketing, uses and general economics. The booklet can be obtained by writing to the American Petroleum Institute, 50 West 50th Street, New York 20, N. Y.

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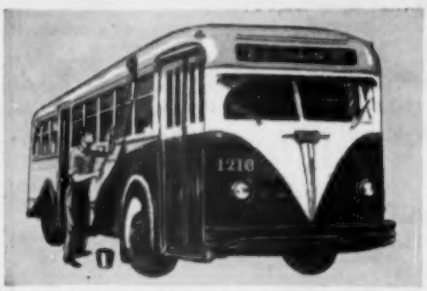

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- ◯ HAVE YOU ARRANGED TO HAVE A BLOOD-MOBILE MAKE REGULAR VISITS?
- ◯ HAS YOUR MANAGEMENT ENDORSED THE LOCAL BLOOD DONOR PROGRAM?
- ◯ HAVE YOU INFORMED EMPLOYEES OF YOUR COMPANY'S PLAN OF CO-OPERATION?
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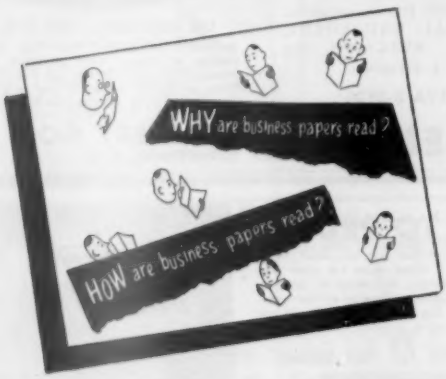

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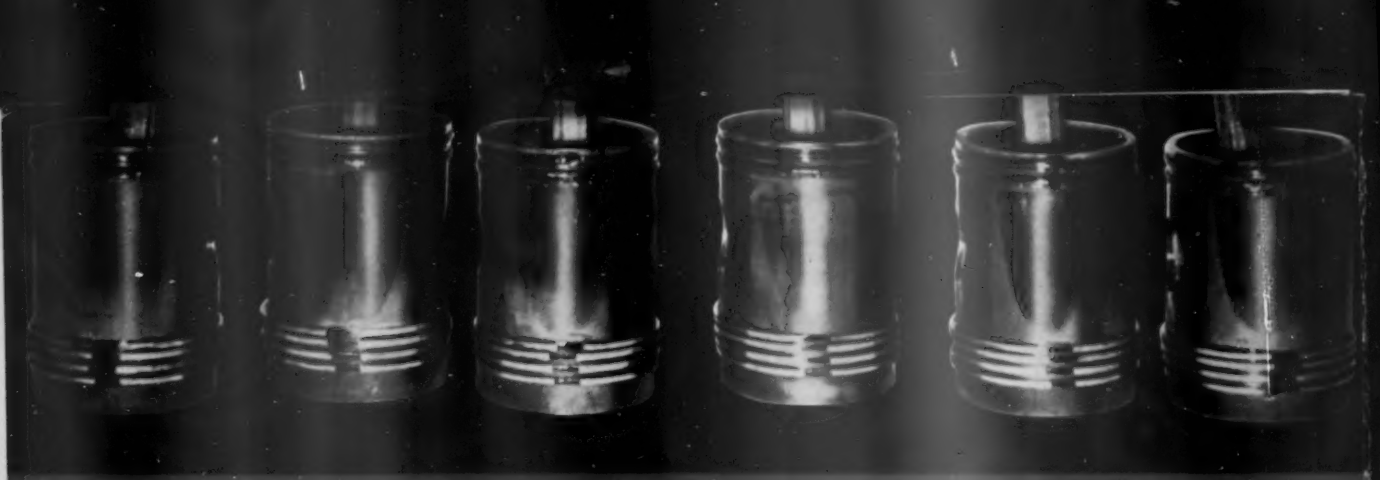

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